

ALL-NEW MAG! + **STUFF PROJECTS** 11 PAGES
OF SKILLS, HOW-TOs & HACKS

Stuff



**130 HOURS
WITH THE
GALAXY S4**
And 128 of them were
S-imply S-pectacular



**TRANSFORMER
TABLETS**
THAT MAKE YOUR
iPAD LOOK DUMB

VA-VA-*shhh!*



**THE ELECTRIC
CAR YOU MIGHT
ACTUALLY BUY**



THE LEGENDARY
STUFF TOP 10s

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BEST GADGETS
IN THE WORLD

**PRESS
HERE**

RESET YOUR TECH LIFE

1 Ditch your kit **2** Get this stuff
3 Be smarter, cloudier... better





Innovation
that excites



NISSAN QASHQAI 360 WITH TECHNOLOGY THAT OPENS UP THE CITY

The new Nissan Qashqai 360 gives you everything you need to make the most of the city. NissanConnect with satellite navigation takes you on an effortless journey to enjoy city hotspots, while its Bluetooth® connectivity gives you easy access to your phone's functions. And with Nissan's Around View Monitor giving you a bird's eye view of even the tightest parking spot in the city, you can park quickly, easily and safely. Nissan Qashqai 360, your city has never been so open.

NissanConnect | **Bluetooth® Connectivity** | **Around View Monitor**

Qashqai Range: URBAN 27.4-51.4mpg (10.3-5.5L/100km) EXTRA URBAN 45.6-72.4mpg (6.2-3.9L/100km) COMBINED 36.7-62.8mpg (7.7-4.5L/100km) CO₂ emissions 179-119g/km.



SCAN TO EXPERIENCE
THE QASHQAI 360
IN ACTION.

Model shown is a Qashqai 360 1.6 priced at £20,395 On The Road with optional metallic paint at £525 inc. VAT. Refer to dealer for exact specification. Models subject to availability. NissanConnect requires compatible phone or device (not included with vehicle) and relies on services provided by third parties outside Nissan's control. The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by Nissan Motor (GB) Ltd, is under licence. Other trademarks and trade names are those of their respective owners. Nissan Motor (GB) Ltd, The Rivers Office Park, Denham Way, Rickmansworth, Hertfordshire WD3 9YS. 203377/1

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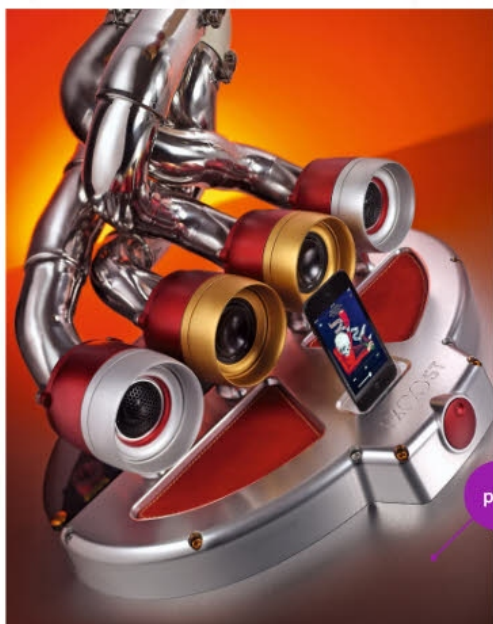
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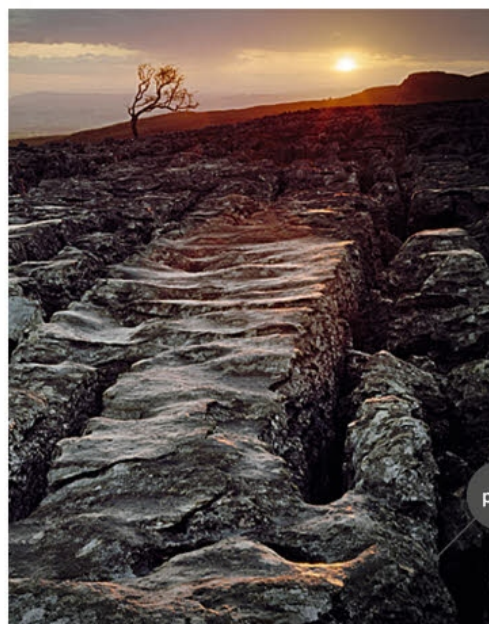
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OUR PRICES

Prices in Hot Stuff are RRP's. Prices in features, tests and Top 10s are the best we could find from a reputable online retailer at the time of going to print.



A NEW FLAVOUR OF SOUND



SAMSUNG WIRELESS AUDIO DOCK WITH VALVE AMPLIFIER

Compatible with

Samsung WIRELESS
AUDIO DOCK



Samsung
GALAXY

Made for



iPod iPhone iPad

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SAMSUNG

WELCOME



Make yourself at home. If you're new to *Stuff*, settle in for a gadgety feast. If you're a regular reader, you might have noticed a few changes around these parts. Don't worry: it's the same mag it's always been, just a little, well, different.

Since last we overhauled, technology's moved on (as it's wont to do). The iPad's happened. Google's taken over the world. Apps and firmware upgrades are the new gadgets. We felt we had to move on too. We asked you what you wanted from the mag, we mapped out the changes in the tech landscape and we set about sketching a better-informed, better-looking, more fun and more useful magazine. In short, a *Stuff* for the future. I hope you enjoy it.

But for all the change, *Stuff* hasn't really changed at all. Our aim is the same as it's been throughout our 14-and-a-bit-year history: to show you bewilderingly desirable new kit on every page, and to let you know in no uncertain terms if it's worth your time and money. That's what you'll find in our shiny new supertest of **Windows 8 transformer tablets** on p76, or our exclusive first test of the **Samsung Galaxy S4** on p62. (Short version: it was worth the wait.)

All that said, if you want newness, try **Projects** on p101: our monthly guide to doing amazing things with your gadgets. Change is good. 

Will Findlater, Editor / will@stuff.tv / [@willfindlater](https://twitter.com/willfindlater)



THIS MONTH IN STUFF'S iOS APP EDITION

- Exclusive videos of the Samsung Galaxy S4 and BB Z10 long-term test
- Stunning hi-res and 360° photos of the hottest tech

Good news! *Stuff* is also available on **Google Play**, **Zinio**, **Exact Editions** and various other services.



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- 1...this great mag landing on your doorstep before it hits the shops, every month.
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H

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HOT
FOUR
#1

THE BEST BITS OF THE BEST LAPTOPS IN THE WORLD

**Toshiba's Kirabook
is as crisp as Retina
and lighter than Air**

Like an electric aeroplane full of fat people on a runway made from chewing gum, Windows 8 is having some trouble getting off the ground. What it really needs is a champion that can show off its power and flexibility while exhibiting its touch-friendly, app-centric Metro side – and that's exactly what it's got in the Toshiba Kirabook. Let's start with its screen: a stunning 13.3in effort with a 2560x1440 resolution, it rivals those on the MacBook Pro Retina and Chromebook Pixel. It also has the 10-point touch of a Pixel – for a modest upgrade price over the base model –

and the body of a MacBook Air, measuring up at 18mm thin and weighing a mere 1.18kg. Inside it'll have a 256GB solid state drive, an Intel Core i5 or i7 processor and 8GB RAM. In summary, it's all of our favourite laptops rolled into one. Although if you want to get technical, it's not rolled, but pressed, from a sheet of magnesium alloy, using a honeycomb construction technique that makes it extremely light and strong. In case you were wondering.

As hot as... K(e)ira Knightley
Price from US\$1600 / toshiba.co.uk

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F

28 PAGES
OF THE BIGGEST
STORIES FROM
PLANET TECH

SUPER-LAPTOP SPEC SKIRMISH

	 Best for Windows zealots	 Best for our cloudy future	 Best for value	 Best for raw power
	Toshiba Kirabook	Chromebook Pixel	MacBook Air 13	MacBook Pro Retina 13
Price	from US\$1600 (£1050)	£1050	from £1000	from £1250
Screen	13.3in, 2560x1440, 221ppi, touch optional	12.85in, 2560x1700, 239ppi, multi-touch	13.3in, 1440x900, 128ppi	13.3in, 2560x1600, 227ppi
OS	Windows 8 Pro	Google Chrome OS	Mac OS X 10.8	Mac OS X 10.8
Weight	1.18kg	1.52kg	1.35kg	1.62kg
Processor / RAM	i5/i7 / 8GB	i5 1.8GHz / 4GB	from i5 1.8GHz / 4GB	from i5 2.5GHz / 8GB
Storage	256GB	32GB (+1TB GDrive)	128GB	from 128GB

TOP SPEED
155mph
 MAX RANGE
186 miles
 TRANSMISSION
4/5spd manual
 0-62MPH
3.7secs



HOT
 FOUR
 #2

THE ELECTRIC CAR JUST GOT FASTER

**Meet Detroit Electric's SP:01
 – the swiftest eco car ever**

If you were to go back 100 years and tell someone that in a century's time Detroit Electric would be the most exciting name in electric cars, they'd look at you like you were mad. That's because, 100 years ago, Detroit Electric was already the most exciting name in electric cars. It was founded in 1907, the same year as Ford, and while they went a little less than 155mph in those days (more like 25mph), Detroit's were owned by people with money and a sense of the future. Thomas Edison had one. John D Rockefeller had two. That said, with the same Lotus Elise chassis as the Tesla Roadster but a manual gearbox and more power, we'll take this century's Detroit.

As hot as... demand for Lotus Elise parts
Price US\$135,000 / detroit-electric.com





HOT
FOUR
#3

NEXT-GEN GAME GRAPHICS ARE GO

Just look at *Battlefield 4*

Each generation of consoles brings something new to the party. The sixth (PS2, Xbox) invented online multiplayer; the seventh (PS3, Xbox 360) brought HD gaming. And the eighth? By the look of *Battlefield 4*, it'll be graphics so realistic they make reality itself seem drab and uninspiring. Sure, most people will buy this game for *Battlefield*'s brand of epic online slaughter, but it would be a waste to use such stunning visuals on frenetic fragging alone, so the single-player game has been given a lot more thought this time. It'll be longer, with a more involving storyline and traditionally multiplayer-only features such as the ability to direct squad mates. Still, it's nice to know there's a couple of years' worth of frantic fragging with huge maps, more weapons and more vehicles ahead of you once the cinematic single-player is over.

As hot as... a depleted uranium dongle
due autumn / battlefield.com

HOT
FOUR
#4

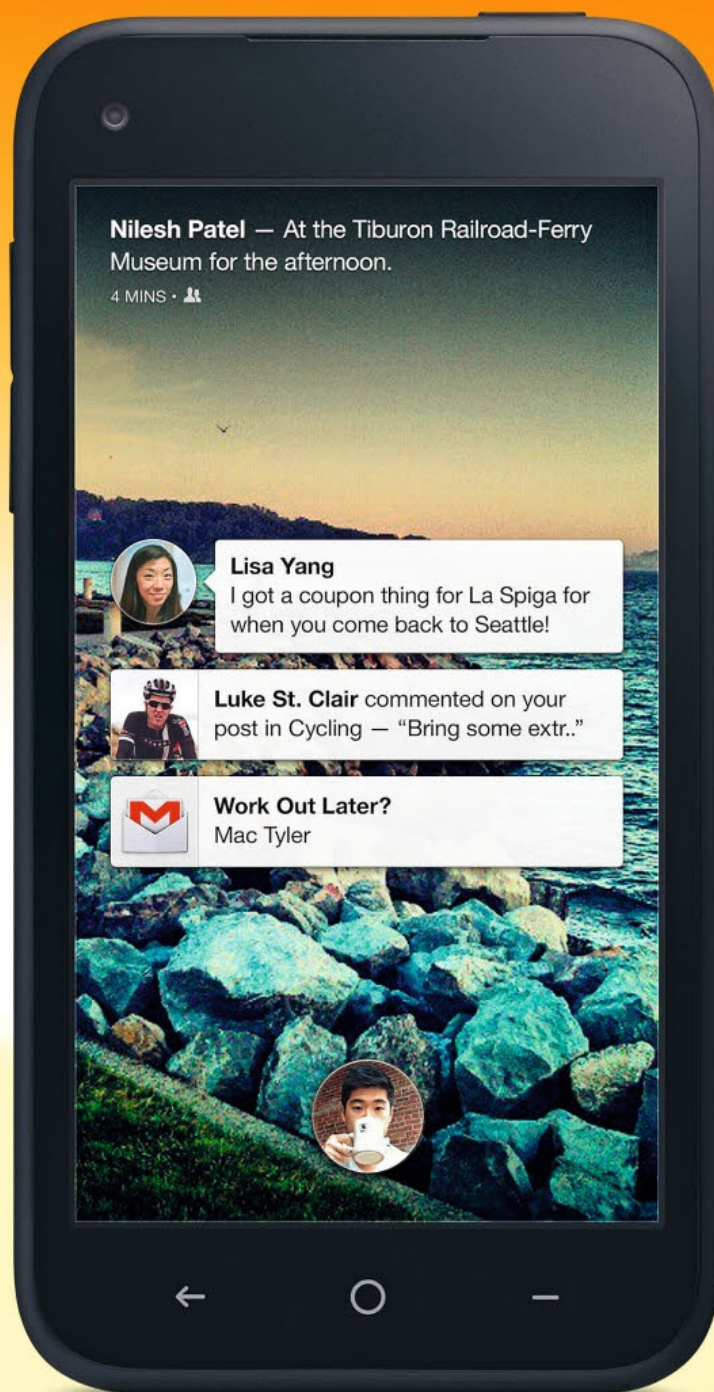
FACEBOOK HOME WANTS YOUR PHONE

...and just invented the 'appering system'

To the casual observer, Facebook Home may look like an Android skin or launcher that gives you ready access to a popular social network. And they'd be half right. It's free and installs on many Android phones, although the HTC First pictured here will come with it preloaded. But it's also a lot more than that, because even if you never install Facebook Home, it could change the way you use your phone.

This is a new kind of thing — neither app nor OS, it's being referred to as an 'appering system'. Normally you unlock your phone and open an app, but Home feeds you timeline info from the lock screen, and there's nothing to sign in to when you do unlock it. Why will this change your phone? Because the average smartphone user looks at their phone 150 times a day. If all of those eyes are on Facebook, that's got to be worth a few bob. Expect Google and Apple to be taking notes.

As hot as... Zuckerberg's money counter
Price £free / play.google.com



No Home for my phone – but I'm not averse to a takeover
WILL DUNN
@willydunn



As far as I'm concerned, Facebook is just a big waste of time. That's not as derogatory as it seems; many of the best things in life are just a big waste of time. Music, paintings, ten-pin bowling — all of these things serve no purpose at all, and they're still valuable. But there's the

rub: a smartphone is a useful thing, and coating it with uselessness — no matter how attractive and interesting it is — gets in the way. That doesn't mean I couldn't get into an appering system. A look at my phone's data usage reveals that I rely on Gmail, Google Drive and Google Maps to the point where a Google skin (Chrome

Home, perhaps?) would suit me just fine. That said, I prefer to mix and match my accounts — another reason I'm wary of FB Home — so perhaps I'll wait for Firefox Home, if Mozilla ever makes it. Likewise, if you're an Android user with an FB addiction, you might find Home indispensable: it could help you waste time in new, interesting ways.

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VITAL STATISTICS

THE WORLD'S SMALLEST DSLR

Canon EOS 100D

£580 (body only) / canon.co.uk

CSCs win pocketability points, but DSLRs, with their optical viewfinders and better lens choice, are more versatile. Could the 100D be the best of both?

● It's small

How small, you ask? Well, it's pretty much the same size as Panasonic's big CSCs, the GF-3 and G5. In fact, most of the larger CSCs, such as Olympus' OM-D, are just a touch wider, although the 100D's built-in flash and proper optical viewfinder make it taller and fatter. It weighs about the same, too, at just 407g.

● It has a top-grade sensor

Beginners will love the D100, but it's certainly no toy. It has the same 18MP APS-C sensor and Digic-5 image processor as Canon's other new DSLR, the 700D, so image quality should be even better than that of the superb 650D.

● It can use all your old lenses

The main reason to not buy a CSC is because you've built a collection of lenses and don't want to bin the lot for a new mount. The 100D has an EF-S mount, which will take the same lenses as any Canon DSLR, from an ancient D30 to a 6D. This means it could also make a superb second cam for serious snappers.

● It's a film star

The 100D will shoot 1080p video at 30fps, but more importantly, it comes with continuous autofocus and subject tracking. This means that you can make the most of beautiful, background-blurring apertures without your subject drifting in and out of focus.

● It's seriously swipeable

Further evidence that the 100D is a 650D that's been in the wash too long is the rear touchscreen. It doesn't flip out for arm's-length shooting, but it should make changing settings a touch quicker.



SIZING UP THE COMPETITION



Nikon D800
146x123x82mm, 1kg



Canon EOS 100D
117x91x69mm, 407g



Panasonic Lumix DMC-G5
120x83x71mm, 396g



Canon EOS M
109x67x33mm, 298g



Best in glass

● Starter for lens

Canon has announced a new version of its popular 18–55mm kit lens (£140, parkcameras.com) to go with the 100D and 700D, with a speedy and very quiet autofocus motor. If you're buying as a beginner, the image stabilisation and zoom range make it a good starting point.

● Street shooter

Our first choice, though, would be Canon's 40mm 'pancake' lens (£120, procamerashop.co.uk). At about the size of two chocolate digestives and with a versatile focal length, it'll turn the 100D into a rangefinder-sized marvel of street photography.

● Video star

Canon's 24–105mm L-series lens (£580, procamerashop.co.uk) is the choice of many video professionals, thanks to its silent ultrasonic motor and image stabilisation. Pair it up with the 100D and you'd have a superb filming rig for under £1200.

BEGINNERS WILL LOVE THE 100D, BUT WITH THE SAME 18MP APS-C SENSOR AS THE 700D, IT'S NO TOY

Fishing for compliments PHILIPS FIDELIO PS1 SPEAKERS

If only more things were designed to look like deep-sea animals. Take the swish-looking new Fidelios. They are clearly modelled on the anglerfish: it has a large, upturned bass speaker / mouth, above which dangles a tempting tweeter / lure. But unlike any breed of anglerfish yet discovered by marine biologists, the PS1s are AirPlay compatible and make a sound that is considerably more beautiful than a squelchy subaquatic croak. Apart from that, though, they're exactly the same. Now, why hasn't anyone made a gadget that looks like a hagfish?

£2000 / philips.co.uk



Bubblicious RESSENCE TYPE 3

For most gadgets, being filled with liquid is the point at which they become e-waste. But not this dizzyingly accomplished timepiece: the magnetically rotating discs that tell the time on its face are enclosed beneath a sapphire dome filled with a hydrocarbon fluid that closely matches the sapphire's refractive index, giving the impression that the numbers are moving on the surface of the sapphire. You can probably even wear it in the bath.

€23,000 / ressence.eu

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Find out the facts at regaine.co.uk/facts

FACTS not fiction

regaine.co.uk/facts





Rhythm aces B&O BEOPLAY H6

If headphones were cars, Beats would be an American muscle car such as a Mustang – powerful, fun, but lacking subtlety – while a pair of Sennheisers would mirror the finely tuned Teutonic performance of a Gumpert or a Porsche. And these B&Os? They'd be a Bentley, built with both comfort and performance in mind. Sure, they might come from its BeoPlay range, which is apparently the affordable side of the business – you know, for The Young People – but in reality these smartphone remote-equipped aluminium, leather and lambskin cans, designed to age gracefully with use, are about as thrifty as Imelda Marcos.

£330 / b&o.com



4King out for the future SONY FMP-X1

There's exclusive and there's exclusive. Sony has beaten the competition to become the first major manufacturer to announce a 4K video streaming box, but it's only available in the US. Exclusive. And to feed its new box, Sony has also announced a 4K distribution service for films from Sony Pictures and others. But that doesn't launch until the autumn, so even if you are lucky enough to be a wealthy American, you won't be able to sit on your 'couch' and buy or rent a 4K movie until 'the fall'. Now that's exclusive. Perhaps a little too exclusive.

US\$700 / sony.com



SONY'S EVER-SO-SLIGHTLY DODGY 4K LAUNCH LINEUP

With every FMP-X1, you'll get 4K renderings of *Bad Teacher*, *Battle: Los Angeles*, *The Bridge on the River Kwai*, *The Karate Kid* (2010), *Salt*, *Taxi Driver*, *That's My Boy*, *The Amazing Spider-Man*, *The Other Guys* and *Total Recall* (2012). Still, there's *Taxi Driver*.



↓ DROP EVERYTHING AND DOWNLOAD

Zombies, Run! 2 £2.49 / zombiesrungame.com

What with all the running and the hyperventilating and the going for days without food, the zombie apocalypse will be great for those of us who need to shed a few pounds. Can't wait for the dead to rise? The second instalment of this horror-audiobook-cum-running-app will have much the same effect, turning your jogs into a gamefied fight for survival. With more missions, more characters and a hugely improved base builder, it'll make getting fit as much fun as stabbing a spade through a zombie's face would be. We imagine.

PHILIPS

"IT'S JUST A SMART, GRADIENT-SHADED SHEET OF GLASS"

PHILIPS DESIGNLINE TV

£2000 (46in) or £2800 (55in) / philips.co.uk

Hey do you mind moving that sheet of glass? We're supposed to be taking a look at a TV here. Aha, you fell right into our trap! That smart, gradient-shaded sheet of glass leaning against the wall, looking like a well-dressed window, is the very TV we're here to observe. Designing a TV has traditionally been the easiest job in the world – you just draw a black

rectangle and some sort of stand – so it's nice to see a company taking the trouble to come up with something a little different. More than a little different, in fact.

OK, it does look nice – when it's turned off...

Big Phil, as we have just decided to call Philips, hasn't thrown a skipful of money at the Designline just to

fit it with a shonky LCD. If you're a fan of refresh rates (and who isn't?), you'll know that swankier TVs refresh 120 or 240 times per second (120 or 240Hz). This telly has some tech called Perfect Motion, which allows it to refresh at 1400Hz. This also means it can deliver very smooth active 3D – for the tiny proportion of the population that want that.

And I suppose it has all the, er, you know, the Smart gubbins.

Indeed so – from a nifty aluminium remote complete with keyboard to built-in Wi-Fi, multiroom tech that streams what's on the Designline to another TV, and Miracast to sproing what's on your Android phone or tablet to the TV screen. But you were right: it's smartest when it's not doing anything at all.



[Picture: Alan Saller]

Somefing better NERO TRIGGER

Historically, we've fired our camera shutters using primitive physical techniques involving our ape-like fingers. Now, thanks to the Nero Trigger, we can instead harness the power of LIGHTNING and GUNSHOTS (not sure when we'd use the latter). For photographers chasing that killer shot of fruit shattering at high speed, it times snaps better than idiot human fingers ever could. It connects to your cam and sets off snaps as a result of any number of light and sound sources, and comes with automated time-lapse controls to boot. Digits be damned.

US\$200 / nerotrigger.com



START MENU

The month's best concepts, start-ups, crowdfunded projects and just plain crazy ideas



Give 'em schnell

FRITZ

from US\$70 / xyzbot.com

If you want your child to do her homework, this robot head keeps a remorseless, unblinking eye on her and screams in metallic German every time she pauses. Only kidding. Fritz is a kit you and your sprog will have a lovely time building and bringing to life, learning introductory animatronics, programming, anatomy and psychology (by understanding expressions). So you'll have to do the Teutonic shouting yourself.

Status

FUNDED (kickstarter.com)



Ace of spades

SHOVEL KNIGHT

from US\$10 / yachtclubgames.com

If you've never beheaded an enemy with a spade and used it to bury them in the desert sand, you might not appreciate the versatility of a good, sharp shovel. But the developers at Yacht Club Games have, as their charming, funny, nicely soundtracked game shows. Celebrating classic 8-bit platformers such as *Wonder Boy* and *Castlevania*, *Shovel Knight* is a retro treat that you're sure to dig (sorry).

Status

FUNDED (kickstarter.com)



Those that scan, do

PHOTON 3D SCANNER

from CAS450 / matterform.net

Yeah, we know — you bought a 3D printer a few years back. We all did. And like you, we've just stared at it since then because it turns out that it's actually really hard to make a detailed 3D model. So praise be for Matterform's briefcase-sized Photon: its laser eyes create a detailed computer 'point cloud' and mesh model of whatever you place upon it, letting you print (or animate) any solid object you've got to hand.

Status

Funded (indiegogo.com)



BEHOLD THE MANTIS

It may look like it was built in a research facility deep beneath the Nevada desert by teams of men in lab coats, but the Mantis is the work of just one man: animatronics expert Matt Denton from Hampshire.

Matt has devoted five years to building this 1900kg hexapod, which runs on a 2.2-litre diesel engine. The next step, says Matt, is to fit it with LIDAR eyes to help it read terrain, which will allow it to travel much faster. No-one lend Matt a copy of *Spider-Man 2*, OK?



UK GETS MAP MAKER

Google's crowdsourced map improvement tool, Map Maker, lets you add local knowledge to GMaps, updating it with everything from cycle paths to shops. It's been available in other countries for a while, but now we can do Google's work for it: customise our neighbourhoods, too.

Read Petite

'SPOTIFY FOR BOOKS' ANNOUNCED

Waterstones has unveiled plans for a service called Read Petite. Like Spotify, it'll charge a monthly fee for unlimited access to content, focusing on short stories and serialisations rather than novels. Whether it'll run on Kindles when it's launched at the end of the year remains to be seen.



PREMIER LEAGUE PICKS HAWK-EYE

The 2013-14 season will see seven cameras on each goal providing millimetre-accurate decisions thanks to Hawk-Eye, the Sony-backed British company that already aids cricket and tennis umpires. Referees are notified via a specialised smart watch, which we would quite like to borrow.

NAMES TO DROP #1

Sir Hossein Yassaie THE MAN YOU DIDN'T KNOW BUILT ALL YOUR TECH

On a business park by King's Langley railway station lives Imagination Technologies, whose graphics processors are the most widely used on the planet, its technology present in over half the world's smartphones. It's possible you haven't heard of Imagination, nor its CEO, Sir Hossein Yassaie, but without him most of your gadgets wouldn't exist. GPUs aside, he also put a DAB radio in your home via Imagination's product arm, Pure, and there's plenty more to come...

I still feel my first electric shock. When I was growing up in Iran, we had this valve radio, a wooden box with cloth on the front and holes in the back where you could see the valves inside. I poked my hand in and got a shock that threw me several metres. I screamed, but I was smitten, and began building things like walkie-talkies and a hand-made film projector. But I realised that what makes the difference in a device is silicon, the underlying engines and chips you can integrate into various products.

People weren't convinced mobile phones would need graphics chips. Back when mobiles hardly had screens, I began creating graphics chips for them. I recall the CEO of

a US company saying, "Hossein, you're wasting your time, there's just not enough pixels on a phone to need a graphics engine," and I said: "Teeth will be provided." And look where we are today. Teeth most certainly were provided.

Light is the lost element in graphics. There are billions of rays of light in a room. At Imagination we're working on a technology called ray tracing, which models all those rays so that shadows and reflections happen automatically. This will let people render graphics as good as *Avatar* in real time on low-power hardware. It could be the force behind the next YouTube-sized phenomenon.

You don't have to be a pop star, footballer or banker to have lots of money, or to make a difference. If you go into finance or banking you might get a good bonus this quarter, but you can actually do something in technology that will make a big difference to people's lives.

I recently went to an event at which it was claimed some children born now will live to be 200 years old.

I don't know if that's true but we do have an ageing population, and technology can help us adjust to that. We're helping to make a skin patch that monitors breathing, ECG, temperature, stability and so on. It's in clinical trials at the moment and doing really well because it allows people to be monitored closely at home. When you have a shortage of funds and hospital beds, it makes a great deal of sense.

At present, you have a handful of net-connected devices at home. In 10 years it could be 10 per room.

The objects around us will become 'smart', just as phones have. TVs are heading that way, but the smartness won't stop there. In a few years we'll see a proliferation of low-power wireless devices, whether around the home or wearable, and they'll make a big change to people's lives.

"A US CEO TOLD ME, 'THERE'S NOT ENOUGH PIXELS ON A PHONE TO NEED A GRAPHICS ENGINE.' I SAID: 'TEETH WILL BE PROVIDED.'"

GADGETS WE HAVE HOSSEIN TO THANK FOR



The iPhone 5 and Galaxy S4
Two major examples at the top of a very long list of gadgets using Imagination's PowerVR graphics technology. Not bad.



PlayStation Vita and every iPad
Just in case we hadn't made clear just how important PowerVR graphics are to the gadgetsphere. It really is a very long, very definitive list.



Pure DAB radios
Digital radios sold a few thousand units a year before Pure released its Evoque-1, the first DAB radio to sell for under £100. They now sell in their tens of millions.

WTF? CLIMATE-MONITORING CUBOIDS


Sensor adventure
CUBESENSORS

You know when you got your home office redecorated, and you decided to go for a rotating hall of mirrors filled with hallucinogenic gas and screaming, swooping bats? And you know how you still find it pretty difficult to get any work done? Could be that your workspace ain't set up right. Cubesensors and their companion app analyse your office environment and make helpful suggestions – change the lights, adjust the humidity, cut excess noise, remove winged mammals – in a bid to improve your productivity/preserve your sanity. [from US\\$250 / cubesensors.com](http://cubesensors.com)

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The best
EXPERIENCE
in bicycle
navigation



VITAL STATISTICS

THE WORLD'S BIGGEST PHONE

Samsung Galaxy Mega 6.3

£tba (due mid-May) / samsung.com

Don't have a huge pile of cash to burn? A phablet makes a lot of sense – you get a phone and a tablet in one. So, while it may seem comical at first, Samsung's Mega could be the smartest buy you'll make all year...

● **It's enormous**

My, that is a big one. At 6.3 inches from corner to corner, the Mega's 720p screen is barely smaller than that of a Nexus 7, and it's surrounded by a lot less bezel. This should make it superb for entertainment, but with a phablet the other concern is whether you'll look ridiculous holding it up to your face. Which rather depends on the size of your face.

● **It's affordable**

Prices will differ depending on where and how you buy one, but the Mega's mid-range components (dual-core 1.7GHz chip, 720p screen, 8MP camera) and lack of extra-features wizardry mean it shouldn't give your wallet too much of a beating. The shallower of pocket (or smaller of hand) should take a look at the Mega 6.3's smaller sibling, the 5.8.

● **It's by no means low-end**

While it may not be bleeding-edge, the Mega still has plenty of power, and it has it where it's most useful: Android 4.2, a capacious 3200mAh battery, 1.5GB RAM, NFC, 4G and 8 or 16GB storage plus microSDXC for cheaply adding up to 64GB more. Not too shabby.

● **It's got a stupid name**

When it comes to titles, Samsung shows about as much humility and restraint as a Renaissance monarch, and its next phone will probably be called the Samsung Galactic Mega-Chief Divine Prince of the Universe 7.2.



For more views of the Galaxy Mega, download the Stuff iOS app

THE BIGGER THE PHONE, THE SILLIER THE NAME



● **ZTE GEEK 5in, 720p**

A mercifully short, but cringe-inducingly awkward co-opting of geek culture.

● **LG OPTIMUS G PRO 5.5in, 1080p**

Nice effort, LG, but we're holding out for the LG Optimus G Pro S.

● **HUAWEI ASCEND MATE 6.1in, 720p**

So it's a levitating friend? Is that what that means? What does that mean?!



BEAT AN ITCHY SCALP[†]



Joe Hart,
England Goalkeeper



Get instant relief with head & shoulders Itchy Scalp Care shampoo^{*}, a new formula with extract of eucalyptus. Now also available in new Itchy Scalp Care 2in1.

*Visible flakes seen at 2% with regular use. †Itch associated with dandruff.



DUE
OCT

FIRST LOOK BEYOND: TWO SOULS PS3

Narrative is the one thing you can't engineer. It doesn't matter how many trillions of polygons you render at once, because if your characters are badly written they'll always be two-dimensional. Tragically, this is often the case in games: studios pour all their time and money into creating a game world and making it work, design the levels and characters, then tack on a script so badly written it would make Michael Bay wince. That's why Quantic Dream is possibly the most important developer in the world: with 2010's *Heavy Rain*, it proved that a game can

be as emotionally affecting and immersive an experience as a great movie. And Quantic Dream plans to do it again this year.

That's not to suggest that *Beyond: Two Souls* isn't technically advanced. A new game engine and the most sophisticated motion capture seen in any game so far help to make the most of its proper script and proper actors. And when we say proper actors, we mean Ellen Page, of *Juno* and *Inception*, and Willem Dafoe of, well, you've heard of Willem Dafoe. Page plays Jodie, a young woman who is accompanied by

a spirit named Aiden, and thanks to Aiden's supernatural ability to freak people out (and occasionally possess them), Jodie proves to be one of those young ladies with whom it's not a good idea to mess.

Taking a non-linear course through 15 years of Jodie's life, across a variety of large, explorable environments and featuring weighty, non-reversible decisions, this promises to be a big, bold, important game. You might even need a bit of dumb, all-guns-blazing relief once it's over. *Battlefield 4*, anyone?



2-UP: POST-APOCALYPTIC SHOOTERS



METRO: LAST LIGHT

PC, PS3, Xbox 360 / out 17 May

Say what you like about the London Underground, but at least it's not full of murderous fascists and mutant animals. Not completely full, anyway. And at least the lights stay on, mostly. In this sequel to the critically acclaimed *Metro 2033*, you must keep your dynamo-powered torch wound up as you scabble through the darkness of Moscow's Metro, trying to stop the last irradiated scraps of humanity from murdering each other. The Underground probably won't be like that for another few years yet.

VS

THE LAST OF US

PS3 / out 14 June

If you've not heard of the (real-life) ophiocordyceps unilateralis fungus, it's worth Wikipedia-ing: it turns ants into 'zombies', forcing them to scale the nearest plant and bite down on a leaf. The ants then die and disintegrate, releasing the fungus' spores. In this new third-person shooter from the developers of the *Uncharted* series, a similar fungus infects humans.

You play a man escorting a young girl across the resulting wasteland that's filled with bitey fungus-people. Still, at least you don't have to take the Tube.



APP GAMES: KILLER COMMUTE COMPANIONS



SUPER STICKMAN GOLF 2

iOS, Android / from £free

This addictive puttfest shares the aim and power meter of most golf games, but after that it's about as far from a real game of golf as it's possible to go – hence the fun. In fact, just as you're thinking 'this is more like playing *Portal* than golf', you're treated to a course that runs through a *Portal* lab.



NIMBLE QUEST

iOS / from £free

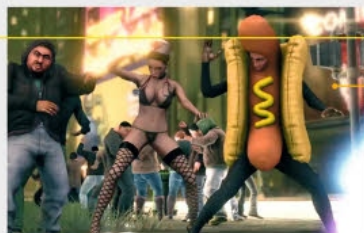
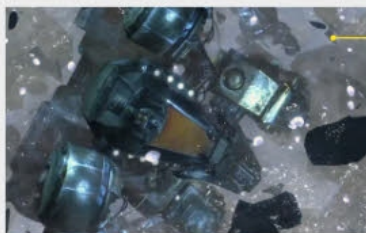
Snake had a 100% share of the mobile gaming market for years, but it's fallen out of favour recently. This clever combo of *Snake* and *Link*, in which you lead an expanding chain of heroes around an endless progression of dungeons and woods, is ready to take back the crown.



EPOCH

iOS/Android / from £free

It's been around on iOS for a while, but this fast-paced robot warfare game has just recently landed on Android, and it's well worth checking out. The graphics are console-quality, thanks to its use of Unreal Engine 3, and combat is stylish without being difficult to learn.



INCOMING

JUNE

● LOST PLANET 3

AUGUST

● SAINTS ROW IV

● SPLINTER CELL: BLACKLIST

SEPTEMBER

● GRAND THEFT AUTO V

OCTOBER

● TOTAL WAR: ROME II

● ASSASSIN'S CREED IV: BLACK FLAG

A cut above.



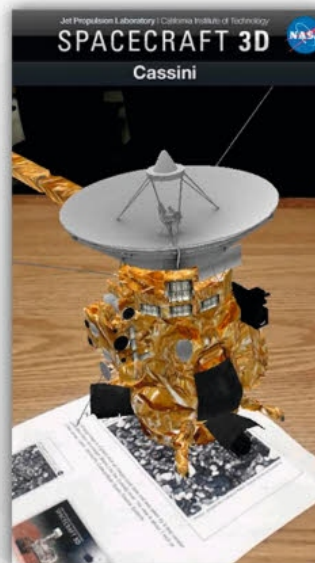
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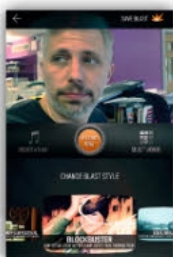
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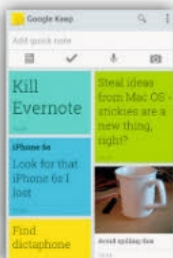
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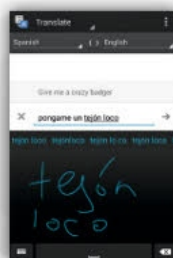
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8



9



1 The Particles

from £4.99 / iOS, Windows 8

If you thought a strange quark was something you might find at the back of a fridge, fear not – this introduction to the world of subatomic particles is suitable for everyone from quantum virgins to Large Hadron veterans.

2 Frameblast

Efree / iOS

Love Vine's one-thumb recording technique but want more than six seconds? This smart filmmaking app employs the same hold-the-button shooting controls but has the ability to make longer films plus greater editing options.

3 Google Keep

Efree / Android

Like Evernote, Keep takes written or recorded notes and pictures and syncs them across devices. There's no real need for Evernote junkies to jump ship, but Keep's integration with Drive does make it one productivity-enhancin' mutha.

4 Nose to Tail

£0.69 / iOS, Android

Vegetarians, look away now. Nose to Tail helps hungry carnivores learn more about the hunks of cow flesh they're shoveling into their gaping face holes, with preparation tips, basic nutritional info and a handy price guide for each cut.

5 Londonion

Efree / iOS

This generative sound app captures noise from the world around you and mixes it into a recording of Stewart Lee reading Kurt Schwitters's 1946 poem *London Onion*. Which will be absolute catnip to some people.

6 Ninja Jamm

Efree / iOS

From the Ninja Tune record label comes this free app for mucking about with the music of Mr Scruff, Coldcut, Amon Tobin *et al*, with more available to buy. Of course, if it was proper music, you wouldn't need to muck about with it.

7 Spacecraft 3D

Efree / iOS, Android

NASA's ace augmented reality app lets you explore its best-known spacecraft through your phone screen, including the Hubble telescope and an interactive Mars Curiosity rover, complete with moving mast, arm and antenna. Yes.

8 Google Translate

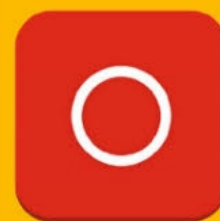
Efree / Android

If you're envious of the Galaxy S4's offline language skills but repelled by its plastic body, fear not. Google has now gifted Translate with the ability to translate offline, too. Just the thing for Android-toting globetrotters.

9 Autodesk Homestyler

Efree / iPad

Take a photo of your room, turn it into a 3D model, then prance about like a digital Laurence Llewelyn-Bowen, adding furniture, paint and wallpaper. Once your creation is perfect, order through the app and realise your interior design dreams.



APP SPOTLIGHT RANDO

Efree / iOS, Android

Life a little too predictable for you? Try this experimental photo-sharing app from the makers of the excellent *Whale Trail* game. The concept is simple enough: you take a picture and send it to a randomly selected user, and in return the app shows you a pic from a third random. It's a nice idea and offers a new way to share images, but we just hope it doesn't go all Chatroulette on us.

I MADE THIS



A BOX THAT TURNS ANY SPEAKER WIRELESS

THE VAMP BY PAUL COCKSEEDGE

"On my way to work, I kept seeing speakers left out in the street with notes on them saying 'please take me'. That got me thinking about how we want convenient ways to play music now, which means connecting to speakers wirelessly. These old speakers were being left out when people opted for bright new Bluetooth ones. But the old speakers were beautiful, and can still give great sound, because they were designed with sound as their primary function. What they needed was a helping hand.

That's what the Vamp does:

simple and affordable. It's also designed to be humble, to celebrate the form of the object that it attaches to. The speakers are the stars.

The sound depends on what you hook the Vamp up to, but every speaker I've tried has been impressive. Even a Bakelite speaker from the '40s or '50s that cost me £1 in London's Brick Lane market sounds wonderful. I'd say you'd need to spend around £200 to get a portable Bluetooth speaker that is comparable to the Vamp's best efforts in sound quality.

If you're thinking of launching

"EVERYTHING I'VE TRIED HAS BEEN IMPRESSIVE. EVEN A £1 BAKELITE SPEAKER SOUNDS WONDERFUL"

it's a translator, it brings them back. You just plug the cable from any speaker into the back and the Vamp turns it into a portable wireless speaker with about 10 hours of battery life.

You have to strike a balance between battery life and power; a big hi-fi amp will need a couple of car batteries to run it. We did a lot of testing and found 4W offered enough to run a big mono speaker without draining the battery too quickly. And we went with Bluetooth (v2.1) as it works with any phone or tablet and you don't need a Wi-Fi network.

A lot of other products in this market focus on looks, so they use complex forms and metal grilles, which adds cost. The Vamp costs £35 on Kickstarter, because it's designed to be

a product on Kickstarter, make sure you can deliver the project, that you've costed everything and got all the certification required. People on Kickstarter are friendly and conscientious but they're also clever, and if you've missed anything, they'll spot it. The key is transparency and communication: if you've got something that captures people's imaginations, you could be answering 100 questions a day. But the fact you can do that is also what makes it amazing."



INGENI-O-METER

Could be what your tired old speakers are begging for

£35 / kickstarter.com



Forgive me, for I have synth NOVATION BASS STATION II

If we were a company called Roland and had made some legendary analogue synths and drum machines in the '80s, we'd have put them back into production years ago. But we're not Roland. And now, other companies that are also not Roland are doing what Roland should be doing. Take Novation with its Bass Station II, a fully analogue synth that takes the best of Roland's classic TB-303 and SH-101 synths and adds new sequencing and effects skills of its own. We're only trying to help you, Roland.*

£400 / novationmusic.com

*This line is purely for people who watched Grange Hill in the '80s.



Important Stuff NATALIA PROJECT

It's rare for us to dip our toes into Important World Affairs, but the noble human rights organisation Civil Rights Defenders has suckered-in us gadget magpies using the shiny bracelet tech of its Natalia Project. Named after activist Natalia Estemirova, who in 2009 was abducted from her Chechen home and murdered, the project is seeking donations to fund these alarmed GPS bracelets for campaigners. Once activated by the endangered wearer, it will relay information to fellow activists around the world as well as sounding an alarm to alert people nearby.

from €5 / natalia.civilrightsdefenders.org

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of the TV you love.



The latest Samsung Smart TVs are so clever, they recommend the best shows for you to watch. Just another reason why Samsung is the TV Brand with the most awarded LED TVs. To find out more visit samsung.com

SMART TV | WITH S RECOMMENDATION

The only Smart TVs with all the catch-up services.



Internet access required. To receive recommendations, a Freeview, Freesat, Virgin Media or Sky TV input and the collection and use of personal data (viewing history) are required. Apps shown are available now or coming soon on all 2013 Samsung Smart TVs (F5300-F8500). Apps may not operate on previous Samsung Smart TVs. Recommended minimum broadband speed for Apps shown is 2MB/s. Samsung LED TVs received more awards than any other LED TVs during 2012.

GADGET ARMOUR

Heck, let's check some high-spec tech protec...tion

1 Tumi Ticon satchel

Prevent 'e-pickpocketing' (skimming details from RFID credit cards) with this bag's ID Lock tech, which blocks such modern-era cutpursing. It can also be registered with Tumi for recovery if lost or stolen.
£795 / tumi.com



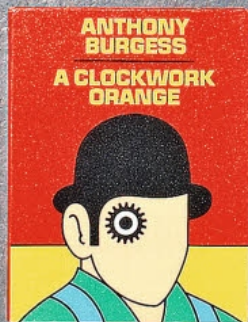
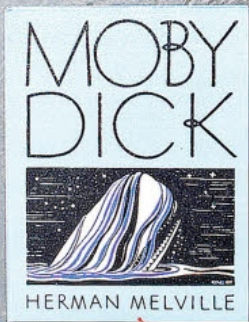
2 Tech21 Impact Band phone cases

The band around the edge of these unobtrusive cases is made from D30, a soft material that stiffens under impact for excellent shock-absorbing power. Tough yet tender.
£25 / tech21.uk.com



3 Literary iPad cases

Fool would-be muggers into thinking you're the type of penniless dullard who'd read a book made out of actual paper (ha!), when you're in fact looking up stock prices on your iPad.
£40 / firebox.com



4 Converse laptop sleeve

Available in 15in and 13in sizes, Converse's sturdy leather laptop sleeves offer protection against sudden impacts and sodden skies. Also ensures your lappy matches your Chuck Taylors.
from £20 / converse.co.uk



5 Alpinestars Slipstream rucksack

If you live life on two wheels then this is the best pack for keeping your tech dry and yourself safe: it's highly visible, sonically welded to be waterproof and has an integrated laptop pocket.
£125 / alpinestars.com





Cineshimi

BLACKMAGIC POCKET CINEMA CAMERA

Like oysters and good fillet steak, photos are best taken raw. Or rather, RAW – an image file containing all of the information from your camera's sensor and which can be edited without any loss of quality. To shoot the video equivalent, you need a hilariously expensive cinema camera. Or you need a Blackmagic. With 13 stops of dynamic range, a Super 16 sensor, Micro Four Thirds mount for interchangeable lenses and lossless video shooting, it's just like a RED, but without the need to remortgage your house. Tasty. **US\$995 (body only) / blackmagicdesign.com**



Taranshooter

BREFFO ADVENTURE CAMERA KIT

When we first tried Breffo's Spiderpodium phone/tablet stand, we attempted to use it as a posable, portable camera tripod. An octopod. It sort of worked, but then it sort of fell off. This idea has obviously occurred to Breffo too, because it has now created an arachnoid stand with a universal camera mount on it, so you can screw on a compact snapper, GoPro or a smart shooter such as the Blackmagic, wrap its legs around any available bar/branch and shoot from an interesting angle. Unless you're scared of spiders. **£20 / breffo.com**

FUTURE STUFF SMELL-O-VISION

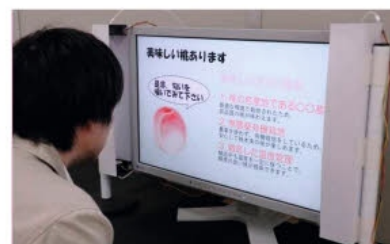
Will Dunn, for whom today is just another day – a long, long time ago

I'm normally happy to get behind any emerging technology – no matter how sinister – on the basis that it's new. If a nervous-looking scientist approached and told me the new artificial intelligence he'd built had become self-aware and assumed control of nuclear weapons, I'd mainly be impressed that we had such a fancy computer. But I draw the line at smell-o-vision.

At the Tokyo University of Agriculture and Technology, a new 'olfactory display system' has been developed. Using four very quiet,

low-power fans, it silently wafts air over pellets of aroma-infused gel towards a point on the screen, making it appear that the smell is coming directly from the cup of coffee or piece of fried chicken being displayed.

And that's why smell-o-vision must be stopped: because it won't be used to augment the next Mary Beard series with the smell of old books, or to let you sniff the same badger as Ray Mears. It'll be used to sell fried chicken and burgers and pizza. I don't need any more of an incentive to buy those things. I can't



walk through a train station without buying a pasty. From the introduction of smell-o-vision, I'd say I'll have about six weeks before *The Jerry Springer Show* is cutting away one wall of my trailer so a forklift can extricate my walrus-like bulk from the mess of chicken buckets and burger boxes inside. Best leave the smell-o-vision off for that episode.



LIVE FROM JODRELL BANK

Regular festivals cramp your style? Will Dunn observes one with loads of space

Music festivals are stupid. Why on Earth would anyone pay £200 to spend a weekend wading through muddy fields, sleeping in a bag, drinking the one nasty brand of lager the festival's corporate megasponsor will allow to be sold on site and be crammed in a huge crowd to watch their favourite bands from half a mile away?

Jodrell Bank, on the other hand, is far from stupid. And the reasons most people go there are not to be found on Earth. As the home of the world's third-largest steerable radio telescope, it's where the keenest minds in astrophysics gather to peer into the far reaches of the universe.

The huge Lovell Telescope is a gigantic white steel bowl, 250ft across and tipping the scales at 1500 tonnes, which gathers radio waves from the surrounding universe and reflects them into a small, supercooled central antenna.



Let's face it, though: most of us aren't astrophysicists. Most of us are the kind of idiots who go to music festivals, and while the starfaring minds at Jodrell Bank observe the rotations of pulsars, we dullards are content to sit around in lawn chairs gargling cider and smelling ourselves.

Helpfully, Jodrell Bank is not just a research facility you can visit for the day. It's a research facility you can visit and see some bands at, too. Since 2011, it has played host to a series of 'Transmissions' (what else?) – one-day events that combine science and music.

So, while the daylight hours at other festivals are mostly spent getting boozed up and seeing who can buy the most repulsive hat, at Live from Jodrell Bank you can wander around the Science Arena enjoying such top-flight nerd fun as a live link-up to the giant 300-metre Arecibo telescope in Chile. If that's not quite your spacebag, you can get to grips with a Mars Rover prototype, or a mathematical origami workshop.

Later on, when our own fiery celestial neighbour and benefactor dips towards the horizon, the evening sees headline acts playing in the shadow of the Lovell Telescope, which is used as a gigantic projection screen. Nice.

This summer's programme will include Transmissions from New Order (6 July), The Australian Pink Floyd (7 July) and Sigur Rós (30 August). Unlike many similar events, Live from Jodrell Bank is sensibly priced (from £35) and there's no camping, so you don't have to sleep in a bag. And of course, you can still act like an idiot while you're there, if you like.

GO FURTHER



● **Celestron Nexstar 130 SLT**
With its fully automated mount and a computerised hand control unit, you can ask this advanced telescope to home in on any of 4000-plus objects and galaxies in the night sky.
£390 / celestron.com



● **Zhumell Z12**
It's not for beginners, but this man-sized Dobsonian scope will, with a bit of fiddling, produce some incredible images. It's powerful enough to see craters on the Moon, or Jupiter's Great Red Spot.
£850 / zhumell.com



● **Canon 15x50 IS**
You're not limited to a telescope for astronomy – these weatherproof, image-stabilised binoculars can pick out many celestial objects, and will no doubt come in handy during the day, too.
£1330 / canon.co.uk



Spin doctor PARASOUND HALO CD1

Science has proven that we use just 10% of our brains (NB: not actually true), and in a similar way normal CD players don't serve up the full potential of those shiny discs. That's because the burden of producing audio in real time as a CD spins means information is often lost.

But no more! The Halo CD1 spins discs at four times the speed of your common-or-garden player, buffering playback so its on-board Linux-running Intel-based PC can rescan the disc to fill in the information gaps and produce a fuller sound. It can't do anything for your brain, though. That's a lost cause.

£4700 / parasound.com



The first bite is with the focusing ring PANASONIC DMC-GF6

As guilty pleasures go, taking pictures of your food is this century's equivalent of stoat-wrestling: you know others will think less of you for it, but it feels good. And thanks to its Food Recognition mode, the Panasonic DMC-GF6 is the Tenties equivalent of a bag full of feisty stoats.

It goes from off to shooting in half a second and recognises and auto-adjusts for food on a plate, so you can be snapping away within moments of balancing that seabass fillet on its rotunda of crushed potatoes. Built-in NFC and Wi-Fi mean it's then a moment's work to tweet your shameful food-porn. Bon appétit.

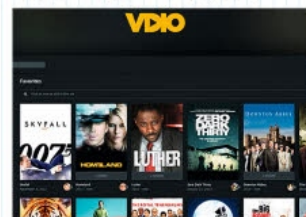
£500 / panasonic.co.uk



TOM WIGGINS MEDIA HOARD

Don't you wonder sometimes 'bout sound and vision?

● Too slow, Spotify; arch rival Rdio has gone and beaten you to the movie-streaming punch. Rather than go for Netflix-style, all-you-can-watch subscriptions, newly launched sister site **Vdio** (see what they did there?) offers movies and TV shows on demand. With £4.50 rentals and download-to-keep prices starting at £8, it's not cheap. Plus it currently only works in web browsers or on an iPad, and you also need to be an Rdio Unlimited subscriber to access it. That's hardly going to have iTunes et al running scared. But still – your move, Spotify.



● While Rdio has been playing with video, Twitter has made its much-rumoured foray into music. **Twitter #Music** (Efree, music.twitter.com / iOS app) compiles a list of popular artists based on tracks people have tweeted with the #nowplaying hashtag, which you can sort by up-and-coming bands, artists your followers have tweeted about and personalised recommendations picked by Twitter. Input your Spotify or Rdio account details and you can even play music within the app or site. Follow Tom @wiggowiggo

THE LISTEN LIST Songs to reset to (see p48)

**ELECTRIC SOFT
PARADE**

Start Again

TRACY CHAPMAN
New Beginning

OUTKAST

Reset

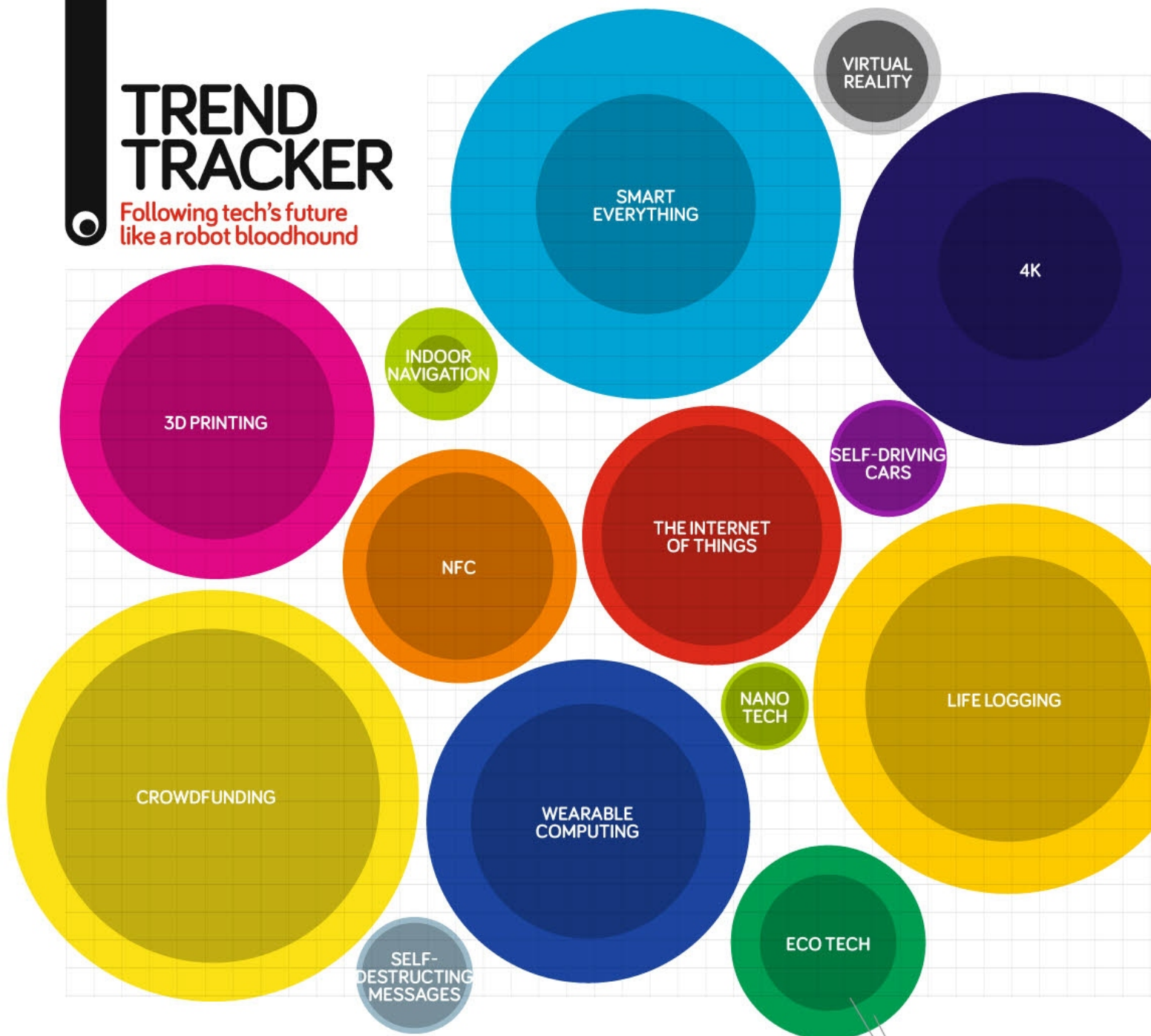
JOHN LEE HOOKER
Turn Over a New Leaf

BRIGHT EYES
Spring Cleaning



TREND TRACKER

Following tech's future like a robot bloodhound



CROWDFUNDING

The crowdfunding market expanded to US\$2.7 billion in 2012, according to results published last month.

NANOTECHNOLOGY

Solar cells could soon be 25% more efficient thanks to the light-sucking optical properties of 'nanowires'.

SELF-DESTRUCTING MESSAGES

After the success of Snapchat, Facebook is testing its own service.

3D PRINTING

Makerbot, Moedls and Photon (p19) all announce desktop 3D scanners, making 3D printing easier.

KEY

NOW

LAST MONTH

The bigger the circle, the closer to world domination a trend is.

LIFE LOGGING

Fitness tracker Fitbit has launched a Windows 8 app, ready to record all of those runs you're not going on.

INDOOR NAVIGATION

Apple's buyout of indoor nav firm WiFISLAM hints the next Apple Maps could guide you around inside.

SMART EVERYTHING

Apple looks set to put brains in your TV and watch – now it's patented a smart pen with a CPU and display.

THE INTERNET OF THINGS

A study has found that IoT inter-machine comms may cut carbon emissions by up to 9 billion tonnes by 2020.

4K

Ultra HD TVs are becoming affordable (see right), and Sony has launched a 4K video streamer (see p17).

NFC

You can now tap in with any contactless debit/credit card on a London bus and it'll charge the Oyster fare.

ECO TECH

A wind turbine developed by Delft University makes no noise. Water droplets are its only moving parts.

WEARABLE COMPUTING

Chinese search giant Baidu is making a Google Glass clone called Baidu Eye. It will surely be *just* as good.

SELF-DRIVING CARS

2013 Volvos feature Cyclist Detection, using sonar and radar to activate the brakes if the car is going to hit a bike.

VIRTUAL REALITY

Engineers have developed a headset that sneakily steers you in circles, creating an 'endless' VR world.

SO HOT
RIGHT NOW4K SORT OF
A BARGAIN

Ultra HD tellies are inching towards affordability. Sony, which until recently asked five figures for its 4K sets, now offers a 55-inch set for US\$5000, while Seiki is charging a mere US\$1300 for a 4K 50-inch. You might even be able to afford one to go with your PS4.

IT'S 4D PRINTING
NOW, TRY TO KEEP UP

Yes, in the time it's taken you to read this page, '4D printing', in which smart materials self-assemble into objects, has become all the rage. Well, it will, in a decade or so. For now it's the basis for design giant Autodesk's awesomely-named Project Cyborg.

MICROSOFT
INTER-WRISTED

Apple's doing a smartwatch, which means that obviously Samsung is doing one and now Microsoft is reportedly planning its own wristputer. Which, if it follows the Surface model, means it'll be nicely made, hampered by its OS, and two years later than its competitors.

No, actually it's my PC
MIIPC

The internet is a vital source of information but can turn nippers into Facebook addicts or, even worse, YouTube commenters. MiIPC is a 1080p-ready, dual-core, 1.2GHz Android 4.2 PC that gives each family member a profile and parentally defined website access, so you can limit the kids' social networking and browsing time. You can even use the iOS and Android app to precisely snoop on their app usage.

But given the internet is such a vital source of information, they'll soon learn to dual-boot Linux and goback to playing *Night of the Axe-fiend Sex Aliens*.

from US\$100 / miipc.com

Formby goes electric
VOX UKELECTRIC 33

Bob Dylan's 1965 decision to plug in and rock out was seen by many as a betrayal of his folk minstrel purity. Dirty, dirty impure electricity. I mean, what has electricity ever given us? Apart from the lightbulb. And the computer. And record players on which Bob Dylan fans can listen to his music while quietly fuming at the sheer perversity of it all. Nothing, that's what. Oh, there's also this electric ukulele with built-in amp for campfire singalongs and output jack for hooking up to something larger and recreating Newport '65. Boooooo!

Etba (due June) / voxamps.com/uk





RAIN DOES *not stop* PLAY

WHATEVER YOU'RE DOING THIS SUMMER
DO IT WITH *zest*



Carling Zest with a hint of *natural citrus*
Also available with a hint of ginger.
Show us your Zest at facebook.com/carling

for the facts drinkaware.co.uk

NOW PLAYING

The most exciting stuff we did last month

Organic

Apple — 15 ppm NO₂-N



Organic? Probably! The amount of nitrogen in this apple — 15 ppm — is considerably lower than 500 ppm, the government standard. Awesome!

I POKED AN APPLE

This issue was powered by Jazz apples. To ensure we gobbled only the purest, we probed fruit with an iPhone-powered science lab called Lapka. It found the nitrogen levels to be acceptably low, allowing munching to commence. Next up: the *Stuff* team's radiation levels.



Mark Wilson
features editor /
fruit investigator

I SCULPTED FUTURISTIC POTTERY

Craft a digital vase with the Let's Create! Pottery app, and you can upload it to Sculpteo, who will 3D print it (in plastic). If they'd had this when I was at school, I might have made more than just a series of 'anatomical studies'.



Will Dunn
news editor /
clay fighter



I PLAYED THE NERDIEST GAME EVER

I've been enjoying a futuristic version of *Risk* that can be played just 15 times. Each game's fortifications and nukes alter the board forever and four sealed packets, opened at set points, change the playing field entirely. It's the smartest board game since *Trivial Pursuit*.



Tom Parsons
reviews editor /
military strategist

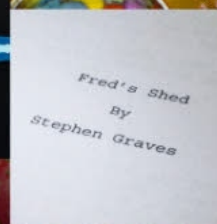


I HELD A BACK-OF-THE-BUS DISCO

Dropping beats with Traktor DJ (£13.99, native-instruments.com) for the iPad is so simple even a tone-deaf chump like me can do it. Proof? I was able to mix Jamie XX and Gil Scott Heron seamlessly into Prince. The N155 to Morden has never seen anything like it.



Tom Wiggins
deputy editor /
DJ lid smuggler



I CROWD-FUNDED A FILM

I'm using Indiegogo to fund a short film. It's the story of an elderly inventor, his shed and the love of his life — and I've taken over my dad's workshop to shoot the pitch. Check out the details at bit.ly/build-freds-shed



Stephen Graves
deputy web editor /
third Wachowski



I SHOT SOME SMARTIES

As with most of my arty photos, the idea for this came from Flickr. The set up was simple: a bowl of Smarties below a CD case sprayed with water. Focusing my Canon EF 100mm macro through the droplets rather than on them was the hard part, but I think I nailed it.



Marc McLaren
production editor /
Smartie pants

SONY
make.believe

experience the best of Sony in a smartphone



Over time, Sony has changed how you hear, capture and see the world around you. Now all our screen, camera and design expertise has gone into our new smartphone, **Xperia™ Z**.

BE MOVED

XPERIA



sonymobile.com

The new Xperia™ Z.
Available in black or white.



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PLAYLIST 05.13

The stuff we're most excited about this month



06

WALKING WITH DINOSAURS

We can't promise that these giant animatronic reptiles will break out of Wembley Arena and terrorise the streets of London, biting police cars in half and smashing buildings with their huge robotic tails – but we can hope.



10

VEHICLE 19

An American on a visit to South Africa is given the wrong rental car and finds himself embroiled in a lethal struggle against unsavoury types. It could be worse, mind – we once reserved a 'VW Golf or similar' and got given a Chevrolet Spark.



17

SONY TABLET Z

Sony's thin, light, waterproof and embarrassingly desirable quad-core Android tablet hits UK shelves this month, bringing *Bargain Hunt* into your bathtime.



21

DAFT PUNK – RANDOM ACCESS MEMORIES

Pair your next RAM upgrade with this album from France's favourite robots. With vocals from Julian Casablancas and Pharrell, it'll give you the energy you need to force that 164-pin DIMM into your motherboard.



28

GRID 2

Guildford-based Codemasters knows a thing or two about racing games, having created the *Colin McRae Rally* and *Dirt* games, the *F1* series, *Micro Machines* and the *TOCA Race Driver* series, of which this is the latest tyre-squealing title.



31

THE EAST

The latest movie from the team behind indie sci-fi hits *Another Earth* and *Sound of My Voice* sees a spook infiltrating an Anonymous-esque group of anarchist eco-terrorists in a story that promises to be two parts *Fight Club* to one part *V for Vendetta*.

Experience the World's First 84" ULTRA HD TV



Introducing the World's First 84" ULTRA HD TV from LG, where picture quality is taken to the next level. Delivering 4x higher resolution than Full HD, its impressive size is equal to four 42-inch TV's for an incredibly immersive, vivid and crisp viewing experience.

Bring the cinema experience home with LG's Ultra HD 84" TV.

www.lg.com/uk

LG ULTRA HDTV

*Display of ULTRA HD (3840 x 2160 pixels) content compatible; additional device capable of processing ULTRA HD source content (in 2D or 3D) may be required and will be sold separately.

With Peter Kay's new sitcom *Car Share* premiering on BBC iPlayer and Netflix getting online-only exclusives such as *House of Cards* and *Arrested Development*, we ask...

DO WE STILL NEED BROADCAST TV?

I love a nice cup of on-demand TV – it's a crucial part of any televisual diet. But could I give up broadcast? Nope, that would be like living on desserts only. As far as Netflix *et al* have come, they're still too fragmented, limited and soulless to be my only source of viewing.

Have podcasts killed radio? No, because there's a time for cherry-picking recorded shows and a time when a serendipitous stroll around the channels brings something unexpected and horizon-widening. If I was a slave to whatever's been deemed the latest 'best TV show ever', I'd never have stumbled across the likes of *Generation Kill* or *Curb Your Enthusiasm*.

It's a myth that streaming is now out-muscling broadcast. Netflix paid big for *House of Cards* but original shows are still funded by broadcast's advertising dollars. Want to see more classics like *Breaking Bad* in future? Then you'll need broadcast to stick around for a while yet.

Ditto films and sport. Most films under a year old are on broadcast first, and studios shuffling exclusive deals means you need to subscribe to both Netflix and Lovefilm – another streaming woe to file next to the 'buffering' hiccups served up to anyone with less than perfect broadband.

I like streaming services and they'll get better, but without the best drama on TV – live sport – or that growing feeling of momentum that's the backbone of brilliant serial telly, they won't be replacing the role of broadcast in my life just yet.



YES
Mark Wilson
features editor



NO
Marc McLaren
production editor

Like skinny jeans, nights out and flirting, broadcast TV is no longer part of my life. I don't have the time for it. Between the demands of getting *Stuff* to press each month and teaching my three-year-old daughters how to

resolve disputes without violence, my free time consists of about 24 minutes at 11pm. So what's on the box at that time tonight? *Dallas*; *Celebrity Juice*; half of *Newsnight*. I can hardly wait.

Or I could fire up Netflix on my Roku LT and watch something good. Maybe a US drama such as *Breaking Bad* or *House of Cards*. Or something old, British and brilliant, such as *The League of Gentlemen* or *Cracker*. Or a film. Or I could open iPlayer and watch the grand prix I missed the day before. Or switch on the PS3 for the ITV Player or 4oD apps. Or Lovefilm. Or Sony Movies Unlimited.

You get the idea. In short, I can watch what I want at a time that suits me – a luxury I've never been granted by live TV.

But what about the shared experience only broadcast can deliver? What about those water-cooler moments, the did-you-see-*Masterchef*-last-night-it-was-amazing conversations? Balls to them. I hate them, and I hate people who have them. I don't need to make small-talk about TV with anyone, and if I did I'd use Twitter.

Instead, I'll curate my own TV schedule, thank you very much. Because if there's one thing we've learnt in the internet age, it's that entertainment on tap is much better than having it drip-fed to us.

WHAT YOU SAID

8+ Sean O'Brien

I ditched Sky a while ago in favour of a Media Portal TV server with XBMC setup. Most of my viewing is on-demand stuff, and I'm not a big sports fan so not losing anything there.

@Terence_Young

I'd be happy not paying a TV licence and still watching ads. Terrestrial TV isn't dead, it just needs a reality check.

f Pete Maynard

Channel-hopping is what makes TV great. On-demand helps with series you know, but for finding hidden gems like *Brass Eye*? Not so sure.

8+ John Slater

Give me broadband speeds at home I'm able to distinguish from dial-up and I'll happily make the switch. Slow broadband might be a 'first world problem', but it's an annoying one.

@nickilicious101

In a world of YouTube and on-demand TV, broadcast is becoming less important. But I still want it to be there.

f Daniel Price

I tried using on-demand with no live TV. It was horrible – nothing worked except iPlayer.

f Greg Chanin

The main problem is broadband in the UK. Until it's fast enough to sustain on-demand, people just won't use it. I do use on-demand but it's frustrating waiting for it to buffer.

Join the debate at www.stuff.tv

VOTEGRAPH

Your feedback from fb.com/joinstuff, in mountain form

HMM 75%

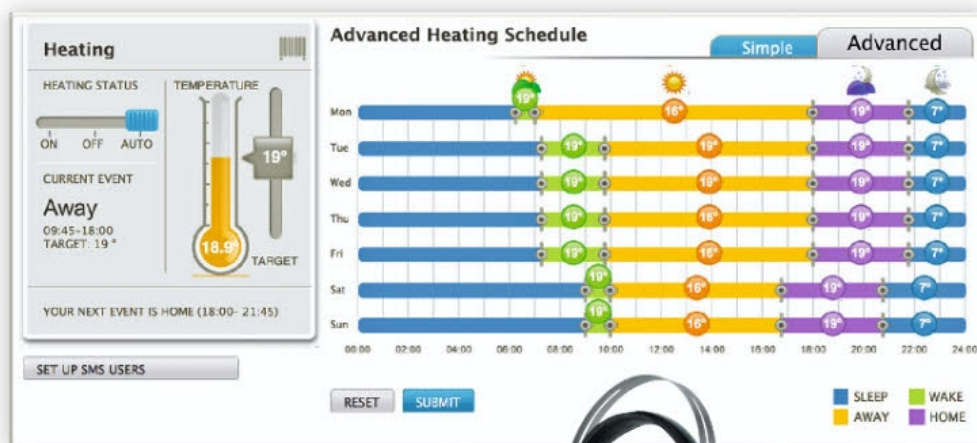
I stream but I'm traditional

YES 12.5%

Keep Paxman live and large

NO 12.5%

Really, who watches ITV?



WIN AN AMAZING TECH BUNDLE TO HELP YOU BUILD A SMART HOME

Rejoice – the age of the smart home is here! It's an age in which you'll hook up fridges, cookers and lightbulbs to the internet, controlling them via smartphone app and generally acting like someone from the year 2175. And thanks to our friends at British Gas, you can be part of this brave new future. One lucky winner will get a free install of its Remote Heating Control, complete with web-connected thermostat for temperature tweaking wherever you are via mobile app or the web. You can use it to set low-

temperature alerts, change schedules and even crank up the heat while on the train.

But that's not all. A truly smart home should also look smart and contain lots of smart kit. So we're also giving away a Yamaha YSP-2200 soundbar for epic home cinema sound without the wires, a B&W A5 AirPlay speaker for streaming tunes from your iThing and two pairs of superb headphones – the AKG K551s and the Harman Kardon CLs. The whole bundle is worth £1750, which, we're sure you'll agree, makes it very smart indeed.

HOW TO ENTER

For your chance to win these five prizes and smarten up your home, visit www.stuff.tv/win and answer this:

WHAT DOES BRITISH GAS REMOTE HEATING CONTROL LET YOU DO?

- A** Control the temperature
- B** Change the TV channel
- C** Dredge the bath plughole

For more information, visit britishgas.co.uk

Terms & conditions

1 Open to UK residents aged 18 or over. **2** Entries close: 11.59pm on 12 June 2013. **3** You will need gas central heating with a single thermostat, and a router with a spare Ethernet port and power connection nearby. **4** Prizes are as stated. **5** Prizes are non-transferable. **6** Only one entry per person. **7** For full Haymarket terms and conditions see: www.stuff.tv/legal. Promoter: Haymarket Media Group, Teddington, Middlesex, TW11 9BE.

HURRY!
COMPETITION
CLOSES
JUNE 12TH

WIN MORE!



32IN SAMSUNG TV WITH PERSON OF INTEREST

We're giving you the chance to win a 32in Samsung UE32EH5000 TV as well as *Person of Interest* season one on Blu-ray. Four runners-up will also win a copy, which comes with extras including producer commentary and an extended pilot episode. **Closes: June 12th**



XBOX 360 WITH TOMB RAIDER: SURVIVOR'S EDITION

We've teamed up with Microsoft and Square Enix to give one lucky adventurer an Xbox 360 console and a copy of *Tomb Raider: Survivor's Edition*. Four runners-up will each receive a standard copy of the game for Xbox 360. **Closes: June 12th**



PS3 WITH STAR TREK INTO DARKNESS MERCHANDISE

To celebrate the eagerly awaited release of *Star Trek Into Darkness* in cinemas on May 9th (cert 12A, tba), we're giving you the opportunity to win a Sony PlayStation 3 Super Slim and a host of film-related goodies. **Closes: June 12th**

to enter go to www.stuff.tv/win



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YOUR TV. YOUR WORLD

THE PANASONIC SMART VIERA WT65 SERIES IS A TOP PERFORMING, BEAUTIFULLY DESIGNED RANGE THAT YOU CAN REALLY MAKE YOUR OWN

You've invested in a sophisticated, connected TV – but it always takes a few minutes to find your way to what you actually want. The Panasonic Smart Viera WT65 Series not only has stunning design and full HD throughout but also has the ability to personalise your home screen – everyone in the family can pull-up their own settings and access *only* what's important to them instantly.

It's a home screen that gives a wide variety of content beyond simple TV – go on Facebook and Skype, keep on top of your diary, access the web. With My Home Screen whatever is your priority you can turn on your TV and get straight to your favourite content: video-on-demand, photo albums and social media – all in that beautiful full HD LED display.

There's a wide variety of apps to choose from to build your home screen and you don't have to compromise your selection with multiple personalisations available – one for every member of the family. It's your world experienced exactly how you want it.

Add to this the brilliant design and incredible performance of Panasonic's latest Smart range, and it is clear the Smart Viera WT65 Series is a class range. Precise frame generation and excellent viewing angles mean that beautiful images are produced with superb brightness, colour and contrast no matter from what angle it's viewed.

"WITH MY HOME SCREEN, YOU DON'T HAVE TO COMPROMISE. IT'S YOUR WORLD EXPERIENCED EXACTLY HOW YOU WANT IT"



Panasonic

SMART VIERA

panasonic.co.uk/smartviera

ADDITIONAL SPECS

- ▶ 3600Hz backlight scanning
- ▶ Advanced wide viewing angle
- ▶ Full HD 3D
- ▶ Multi-core processor
- ▶ Twin HD Tuner
- ▶ Camera built-in
- ▶ Voice control



WIN THIS TV

As Panasonic is letting the viewer loose on its TV home screen, we've decided to let you get your hands on our cover

The choice of cover shot, gadgets, apps and gear are all down to you. Even the colour and cover-lines are your decision. Think you can do better than us? Then visit mycover.stuff.tv or download the iPad edition to unleash your creativity. The Stuff art team will select a winning design and we'll publish it in the August issue. And, naturally, the winner picks up a Panasonic Smart Viera 55in WT65B...



1 Open to UK residents aged 18 or over. 2 Entries close 11.59pm on 31 May, 2013. 3 Prizes are as stated. 4 Prizes are non-transferable. 5 One entry per person. 6 For full Haymarket terms and conditions see: www.stuff.tv/legal. Promoter: Haymarket Media Group, Teddington, TW11 9BE

mycover.stuff.tv

PUTTING THE SMART INTO SMART TV

Being Smart isn't easy - here's how the WT series does it

TWIN DUAL TUNERS

The Smart Viera WT65 Series comes with twin dual tuners: it can display two programmes on the same screen at the same time. Avoid household conflict and keep up with the sport while watching a film.

VOICE INTERACTION CONTROLS

Change channel, browse the web or adjust settings just by talking to your TV. It'll reply too. Text-to-speech tech means it will read on-screen content out loud, handy for everything from recipes to football results.

SWIPE AND SHARE 2.0

Using either iOS and Android, display smartphone or tablet contents on your TV. A swipe up transmits photos, videos and music wirelessly, a swipe down transfers contents from the TV back to your device.

FACIAL RECOGNITION TECH

A built-in camera using facial recognition technology means the TV recognises who's watching then switches home screens. Also useful for Skype and leaving video messages on other people's home screens.



Words Tom Wiggins, Tony Horgan
Model pictures David Venni
Art direction Alex Fanning
Stylist Charlotte Adsett and
Melissa Yates
Hair and makeup Michelle Marsh
Model Annie at Milk Management
Clothing Dress, Aftershock;
sandals, Chockershoes.co.uk;
earrings, H Samuel

CORE TECH
SETUP
p50

MASTER
THE WEB
p53

YOUR SMARTER
SNAPPER SETUP
p54

RESET

YOUR

TECH

LIFE

Imagine if you could start again tomorrow, ditching all of the tech you've accrued over the years and building an all-conquering web of gadgetry that works as a team. Here's how we'd rebuild your tech life from scratch – or just get some of your existing gadgets talking to each other, thereby making the world a better place to be...

SUPERCHARGE
YOUR VIEWING
p58

TUNE UP
YOUR TUNES
p56

ROBOTICISE
YOUR HOME
p60

YOUR CORE TECH SETUP

This is the foundation that supports your entire gadget life, so you need to get it right. If we were starting again now, we'd go for a sprinkling of Apple, a dash of Google... and get the best of both worlds



THE KIT

● Apple MacBook Air (13in)

A proper laptop is still the best way to get stuff done. You could try Google's Chrome OS – but it's nigh-on useless without Wi-Fi. Or you could try Win 8 – but we've not yet seen a W8 laptop that doesn't compromise in at least one key area. Which is why we'd go for the 13in MacBook Air. Striking a brilliant balance of portability, ergonomics and power, it packs a Core i5 processor and 4GB RAM, which will tear through photo and video editing workloads on the fast and simple OS X Mountain Lion. Load up Steam on it (see p58) and it'll even sync your *Diablo III* game with your Mamba media PC (p56).

from £1000 / apple.com/uk

● HTC One

Android is at the bleeding edge of smartphone innovation, and right now the quad-core HTC One is the best of the best. It's a lovely aluminium object, and its Sense interface furnishes you with news and social goings-on at a glance, plus it only takes a few apps to get it working in harmony with all your similarly shiny Apple kit (see right). The 4.7in screen is also a fine companion for the iPad's Retina display, with a cornea-caressing 468ppi resolution and full HD video skills.

£510 / htc.com

Alternatively...
LG Nexus 4 from £240
Android's best bits for half the cost.



● Apple iPad

With a next-gen smartphone for comms and a killer laptop for getting stuff done, what's the point in having a tablet? For all the other stuff, of course. The 4th-gen iPad makes browsing the web in front of the TV, editing photos with gestures, playing point'n'click games with prods and swipe-Dj-ing all seem second nature. Plus, its 9.7in, 2048x1536 screen renders games, movies, photos and books sharp enough to do yourself a mischief. Right now, there is no better media machine.

from £400 / apple.com/uk

Add these...
Sennheiser MM 450-X £300
Sumptuous sound minus the wires.



● Google Apps (incl. Drive)

Apple's iCloud won't play with Android, so it's up to Google Apps to build a bridge between our gadgets. A single account syncs your email, contacts and calendars across devices and gives you 5GB of Google Drive storage (or more if you're willing to pay). It's built for work, letting you create and upload documents through a browser or app – and even has offline editing available in the Chrome version. But its main superpower is in getting your disparate gadgets speaking to each other; you can work on a doc wherever you are and on whatever you have to hand, be it laptop, phone or tablet.

from £free / drive.google.com



Clothing Silver jacket, Missguided.co.uk; skirt, Fashionunion.com; boots, Karen K; earrings, H Samuel



● Google Chrome

This winning web browser uses your Google account to sync your history and bookmarks across platforms, so you can surf away on your MacBook then fire up Chrome on your iPad or One and pick up the same tabs where you left off. There's also a Web Store that's crammed with apps, extensions and games for the desktop version, including Drive, Pocket, Evernote, Angry Birds and Netflix.

Efree / google.com/chrome

● Found

With files stored locally, in the cloud and in your inbox, finding the one you want can sometimes be tricky. Found is an app that hooks up to your various Gmail, Google Drive, Evernote, Dropbox and Skydrive accounts, and, when summoned with a double-tap of the ctrl key, handily sifts through the entire lot. It's Mac-only at the moment but there are Windows and iOS versions in development.

Efree / foundapp.com

● FolderSync

Android's Google+ app can automatically upload every photo you take on your phone to a private folder, but let's face it, no-one's on Google+ (and larger images get compressed). A more suitable option is FolderSync: it's compatible with cloud storage services such as Dropbox and Google Drive, and works over 3G and Wi-Fi to keep all of your pictures and files automatically backed up in one place.

£1.95 / play.google.com

SAMSUNG



Samsung GALAXY S III shares what's in your heart

S Beam your films, music and pictures in seconds. Simply place your Galaxy S III back to back with a friend's and share away.

samsung.com

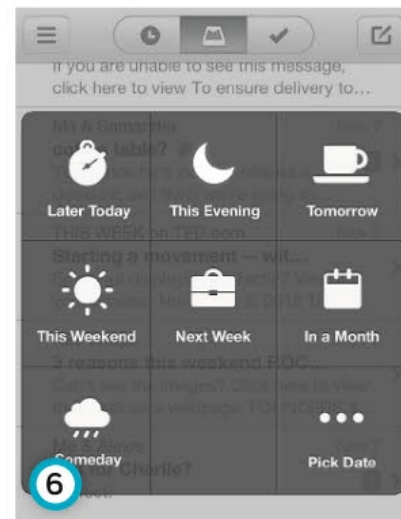
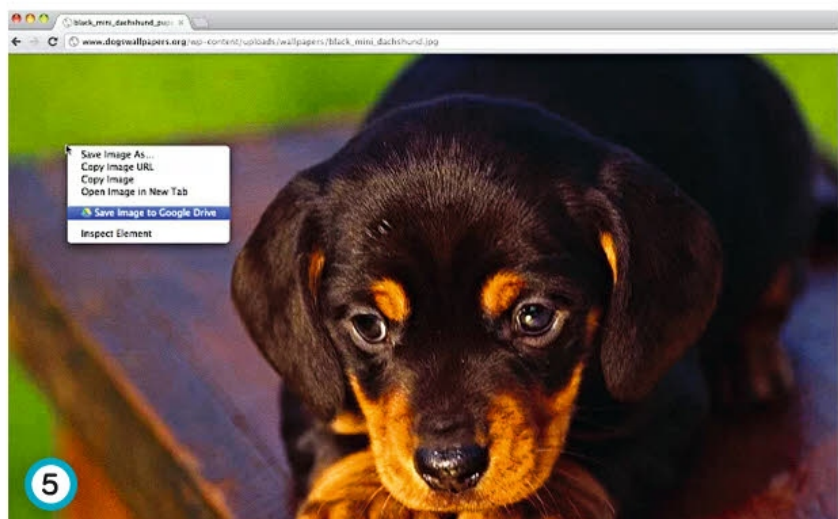
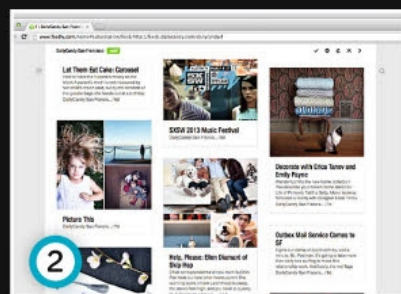
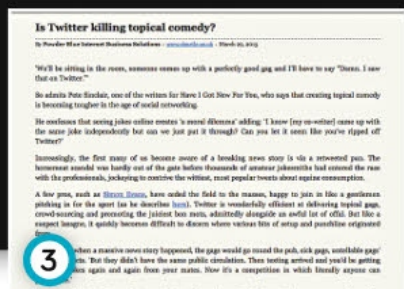
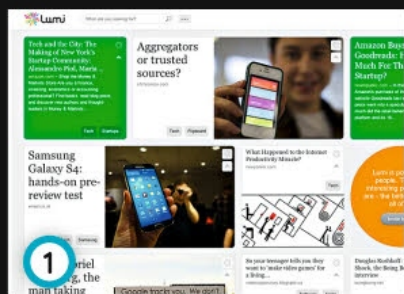
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Available at



MASTER THE WEB

The internet's a scary place these days: dive in headlong and you'll likely emerge covered in Lolcats and *Daily Mail* clickbait. These six simple tools will swiftly sort the interweb from the webchaff



1 Lumi

While it normally wouldn't be wise to let anything track your web browsing, Lumi doesn't do it for nefarious purposes. Created by the founders of Last.fm, it applies a similar ethos to the web, making use of your internet history rather than your music listening to create personalised website recommendations.

Efree / lumi.do

2 Feedly

With Google sending Reader off to live on the farm for retired RSS feeds, you're going to need a new way to keep on top of the news. Lots of users have already switched to Feedly, which has web, iOS and Android versions and allows you to read and subscribe to just the sites you like, which means no more SEO guff.

Efree / feedly.com

3 Send to Kindle

Reading the odd news story on your laptop or phone is fine, but anything longer than a few hundred words and it starts to feel like a chore. Amazon's Send to Kindle button does exactly that and can be installed as an extension for Firefox and Chrome, or downloaded as an app for Mac, PC and Android.

Efree / amazon.co.uk

4 Untweeps

Chances are that in among @StuffTV and the other real zingers you follow on Twitter there's a load of lapsed users clogging your account. Pick a time scale (say, 30 days) and Untweeps scans who you follow and shows you who hasn't tweeted in that time, allowing you to unfollow anyone who's dormant.

Efree / untweeps.com

5 Save to Drive

Saving stuff you find online to Google Drive needn't be a two-step process. This Chrome extension allows you to click on an image or PDF and save it directly to your Drive without having to save it to your computer first. It can also grab web pages as they appear onscreen or the raw HTML code of a site.

Efree / chrome.google.com

6 Mailbox

Mailbox is an iOS app that changes the way you handle your Gmail. Rather than letting emails get on top of you, Mailbox allows you to swipe left to 'snooze' any email that's not urgent for a pre-set amount of time, or swipe right to archive or delete it. Interested? It's so popular you have to join a waiting list to use it.

Efree / mailboxapp.com

YOUR SMARTER SNAPPER SETUP

Got a chunky DSLR and loads of lenses? Stick 'em on eBay. Still using a 5MP compact from 2006? Same again — because your photographic future is smarter, sexier and built around the brilliant OM-D



THE KIT

● Olympus OM-D E-M5

The E-M5 is one of the most desirable objects you could own, combining the things we like about old cameras with all that's useful about new ones. Based on the Micro Four-Thirds system, this switchable-lens style icon ditches the lumpen bulk of a DSLR for a compact form that packs in a crisp electronic viewfinder. Pictures are outstanding, and in dark settings it can go up to ISO 25,600 without murring up. Talking of which, we're particularly taken with the E-M5's Live Time mode, which lets you watch long exposures 'burn in' in real time on its articulated LCD screen.

E1100 (12-50mm kit) / olympus.co.uk



● Eye-Fi Pro X2

It costs more than a standard SD card of the same capacity, but with an Eye-Fi card in your camera you can send your pictures to a phone, tablet or computer wirelessly. While some snappers include Wi-Fi features of their own, they're often tricky to set up and temperamental in practice. But with the Eye-Fi card, you can even tell it to automatically delete images once they've been copied over, making it a great way to clear space for more shots when you're in a rush.

E65 (8GB) / eye.fi

● Snapseed

Once the Eye-Fi's shifted your images to your iPad or HTC One, you might want to do a little tweaking. This free app is perfect for making quick adjustments and corrections: head straight for the Auto Correct feature to pull out detail and fix any kinks in the colour balance, then straighten, crop and make fine adjustments manually. Trendy analogue-style effects are of course on hand too, and once you're done, you can upload the pics to Flickr using the Android/iOS app.

Efree / snapseed.com

● IFTTT

Short for "If this, then that", IFTTT is a canny way to automate lots of common tasks related to social networking and online storage. Sign up for an account, and by dragging and dropping a few icons you can set up a task that says, for example, "If I upload a picture to Flickr, then back it up to my Google Drive too." It's a very simple scripting language that can also be used to deliver Facebook and Twitter notifications, knit together your social networks and even check the weather.

Efree / ifttt.com



Clothing Dress,
Fashionunion.com; shoes,
Chockersshoes.co.uk

ALTERNATIVELY...



Go pro Nikon D600

If you're too set in your ways to ditch your DSLR, that's alright – but at least go for one with a serious advantage over the OM-D. The D600 is that camera: a full-frame 18MP shooter that doesn't cost much more than the Olympus but that offers incredible low-light performance, superb image quality and a super-fast 39-point autofocus. Videographers will also love its uncompressed HDMI output and audio input, while dual SD card slots are ideal for all those space-hungry RAW files.

£1350 / nikon.co.uk



Go small Fujifilm X10

You might not have a grand to splash out on an E-M5 but Fujifilm's X10 bundles almost as much retro joy into a smaller frame for half the price. With a viewfinder and manual zoom ring prompting you to shoot in the classic style, framing and composing feels much more enjoyable and less disposable than the arm's-length style of snapping we're accustomed to these days. Video quality is a letdown but stills are great, and while thoroughly modern compacts beat it practicality-wise, they're a fraction as fun.

£530 / fujifilm.eu/uk

TUNE UP YOUR TUNES

A truly cutting-edge music setup should be built around the best digital streaming tech while still finding a place for the welcoming sound and epic cover art of vinyl. Here's how to unify the two...

THE KIT

● Sonos system

The beauty of Sonos' multiroom music system is how flexible it is. A £300 Play:3 and Bridge setup allows you to stream your digital music and a world of web radio over Wi-Fi, but from there it's almost endlessly expandable. Add the beefier Play:5 (£350), Sub (£600) or even hook up an existing stereo using the Connect (£265) to create a house-full of independent music-playing zones. Each one is capable of streaming a different song simultaneously, or if you fancy, you can unite them for one big orgy of tunes. And best of all, you can use your iPad, MacBook or HTC One to control the lot.

from £250 / sonos.com



● Mamba Fanless Media PC

Your digital music collection needs the right home, and that home should be unimposing, efficient and capable of expanding as your tastes do. Enter the silent, fanless, Win8-based Mamba. It can be specced with over 8TB of storage and an optical drive for ripping your music and movies in a lossless format. Hey presto: the perfect Sonos-compatible media archive. Hook it up to your TV (see p58) and you can even use it for gaming and Blu-ray playback. But sadly not vinyl.

from £1055 / quietpc.com



● Spotify Premium

You can keep your sound quality concerns (Spotify's really rather good, actually) and your iTunes Matches (who wants to pay to stream music they already own?). Spotify's king to us. The Premium option unlocks playback on your Sonos, as well as mobile access on the HTC One and iPad, so you can benefit from its 18 million tunes anywhere. Plus, streaming services are a great way to discover new tunes: listen to it on Spotify, and if you like it, buy it on FLAC or vinyl. Easy.

£10/month / spotify.com

● DoubleTwist AirSync

Sonos already allows you to stream songs stored on a connected iPad or iPhone but it's yet to do the same for Android kit. Instead, you'll need to find a workaround, such as DoubleTwist's AirSync app, which lets you stream music from an Android phone to your Sonos system and other AirPlay-compatible kit. And when it's teamed up with the DoubleTwist desktop app for Mac or PC, it can transfer songs to your phone wirelessly.

£5 / doubletwist.com



HOW TO...

BUILD A SPOTIFY-POWERED, RECORD-SPINNING HI-FI

Sonos Connect:Amplifier + Bridge

The Connect:Amplifier turns any old (or new) pair of speakers into a part of your Sonos system. The amp pumps 55W through two channels, with the necessary hole to add a subwoofer if you want some extra low-end oomph. Access the Android or iOS app – *et voilà!* – you’ve turned a pair of common-or-garden-variety speakers into a streaming hi-fi with Spotify access, internet radio and your own locally stored music collection. Isn’t technology grand?

£380 + £40 / sonos.com

+

Pro-Ject Debut Carbon Phono USB

Vinyl bods wanting to hook up a turntable to the Connect:Amplifier will need a separate preamp or a turntable with one built-in, such as Pro-Ject’s Debut Carbon Phono USB. Once it’s connected and you’re spinning your charity-shop-£1-bargain copy of Prince’s *Purple Rain* soundtrack, you can select the line-in option on any Sonos zone in your house to hear the purple sex pixie shred away. Multiroom vinyl? The future just went retro.

€400 / project-audio.com

+

Tannoy Revolution DC6

Like trying to eat a roast dinner without using your mouth, listening to music on a hi-fi without speakers is fairly pointless. So maybe get some speakers, yeah? Tannoy’s Revolution DC6 standmounters are excellent all-rounders: they sound tight and punchy, with reassuringly solid cabinets in tasteful light oak or espresso finishes and silver trim. Unless you’re after bass that’ll provoke complaints from your nearest graveyard, at this price there’s nothing to moan about.

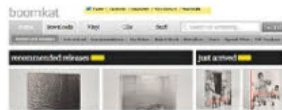
£400 / tannoy.com

BYE BYE ITUNES TRY THESE INSTEAD



Singles Going Home Alone 2013

Matador Records’ annual vinyl subscription offers 13 new 7in singles over the year, sent in threes every three months to the UK (total cost US\$105). The releases for the second half of the year are TBA but expect anything from punk to folk. matadorrecords.com



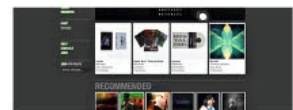
Boomkat

Selling everything from FLAC to the odd cassette (with the occasional free MP3 thrown in), Boomkat does independent music proud. Just don’t come here looking for One Direction; it’s strictly for underground electronica, hip-hop and stuff you wouldn’t play to your mum. boomkat.com



Drip.fm

Commanding a roster that includes everything from Ninja Tune to Domino, Drip.fm allows you to subscribe to labels for as little as US\$10 a month. New releases and exclusive tracks will then be delivered to your inbox with the option to stream or download as MP3s or WAVs. drip.fm



Bleep

Affiliated with legendary Sheffield label Warp Records, Bleep offers downloads and physical releases from a range of labels. While much of the catalogue is dance-oriented, you’ll still find music from other genres, such as Nick Cave’s new record *Push the Sky Away*. bleep.com

SUPERCARGE YOUR VIEWING

Sky or Virgin? Both great, but we'll choose option 3: neither. Because the really cutting-edge living room setup is all about cloud-based on-demand entertainment

THE KIT

● Samsung UE46F8000

There's more to a good TV than how many pixels it can show you. Inside the F8000 is a quad-core ARM processor that'll keep the apps and streaming services flowing like a buttered badger down a water slide. On the top there's a 5MP camera for Skyping and gesture control, and USB recording so you can film one Freeview HD or Freesat show while watching another. Even the remote is clever, with a touchpad for navigation (you can trace a channel number on to it) and a mic for voice commands. Or, control it all from your HTC One. Did we mention it also looks and sounds amazing? That too.

£1900 / samsung.com/uk

● Steam

As the PS4's just around the corner, now really isn't the time to buy a new console. But with the Mamba PC hooked up to your telly and Steam's Big Picture mode activated, you can still get great gaming in. Just plug in a wired Xbox 360 pad and off you go, playing AAA titles such as *Tomb Raider* and cult classics including *Braid* and *Super Meat Boy*. Stick Steam on your MacBook to take the fun mobile.

£free / steampowered.com

● Sonos Playbar

Sonos' first toe dipped into the world of home cinema has been a resoundingly successful one, making this soundbar a good choice for anyone who's already invested in the multiroom music system. You can use a pair of Play:3s (£250 each) as rear speakers to expand the sound and a Sonos Sub (£600) to give it some extra rumble, plus it plays tunes better than any soundbar we've ever tested.

£600 / sonos.com

● Netflix

The new king of on-demand streaming TV can't be beat when it comes to the biggest shows on the box. And just as importantly, it plays seamlessly on all of our core gadgets. The F8000's Smart Hub interface has a Netflix client built in, there are apps for Android and iOS and it will play through the MacBook Air's Chrome browser, too, at up to 1080p. See our full review on p74 for more.

£6/month / netflix.com



Clothing Dress,
PrettyLittleThing.com;
shoes, Chockershoes.co.uk



● Lenovo Q190 + XBMC

The lounge is sorted, but how about streaming the Mamba's videos to the boudoir? We like Sony's N200 and Apple TV, but neither quite satisfies our need to stream every video format and Netflix and act as an AirPlay mirroring target. What does, though, is the brilliant, free XBMC app teamed with a Win 8 PC such as Lenovo's tiny Q190. Simply add the Win 8 Netflix app and you're televisually sorted.

£250 / lenovo.com, xbmc.org

ALTERNATIVELY... Sony 32HX753

Not everyone has space for a mini IMAX, but that doesn't mean you should miss out on the smart bells and 3D whistles of a top-end telly. The soon-to-be-replaced 32in Sony HX753 is brilliant for a TV of its size and comes with Wi-Fi and streaming skills.

£650 / sony.co.uk



ROBOTICISE YOUR HOME

Home automation is no longer the preserve of the rich and nerdy. Smartphones, Wi-Fi and ever-shrinking silicon mean turning your humble pad into a web-connected smart palace is now within your reach

THE KIT

● Belkin WeMo Switch

It might look as exciting as a porridge-scented plug-in air freshener, but the WeMo Switch is the first step into an exciting world of internet-connected home furnishings. Hook it up to your Wi-Fi, plug an appliance into it, and you can turn it on and off using the WeMo app (which is iOS-only for now, but coming to Android this summer). You can also fix burglar-bamboozling schedules, add a motion sensor or set up IFTTT rules to fully automate it. For example: hook it to a heater, plumb it into the Weather Channel, and set it so that if the temperature drops below 5°C, it turns on.

E40 / belkin.com/uk



● Withings Smart Body Analyzer

A normal set of scales? Heck no. The Smart Body Analyzer is more like having a personal trainer living in your bathroom. It'll measure weight, body fat percentage and resting heart rate, and automatically upload them via Wi-Fi to the Withings Health Cloud, which you can access using the Health Mate app. Monitor progress, set targets, even measure the levels of CO2 in the air – and feel the crushing guilt a real personal trainer imbues you with.

E130 / withings.com



● British Gas Remote Heating Control

Wireless power might still be a bit of a pipe dream, but at least British Gas' Remote Heating Control lets you take charge of your radiators whether you're on the sofa, down the pub or on the other side of the world. Using a Zigbee-powered hub attached to your router combined with a wireless thermostat, it connects your heating system to the internet, allowing you full control via the web or an Android/iOS app. Toasty.

from E200 / britishgas.co.uk



● iRobot Roomba 660

iRobot's 660 doesn't take instructions from mere mortals. That means you won't find any Wi-Fi or app control here, just fast, fully automated robo-cleaning power. Despite the seemingly random nature of its path it'll cover every inch of carpet, sucking up dust and dirt as it roams, using iAdapt tech to make sure it spends longer on any particularly grubby areas. The only time it'll take orders is if you create an infrared barrier using one of the optional IR accessories.

E420 / iroboteurope.co.uk



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FIRST TEST SAMSUNG GALAXY S4

ALMOST UNTOUCHABLE

The sequel to the *Stuff* Award-winning S III is here, packing a 5in, 1080p screen and other wordly no-touch-needed tech. Sophie Charara finds out if it's enough to see off Android's new heroes...

from £580 / samsung.com/uk / ee.co.uk



Welcome to the future, Samsung-style: a bit like the past, only bigger and with a few new tricks. And why the hell not? Last year's Galaxy S III was hugely successful, so giving it a moderate upgrade and sitting back while it sells by the bucketload makes sense; it certainly worked for the iPhone a couple of times.

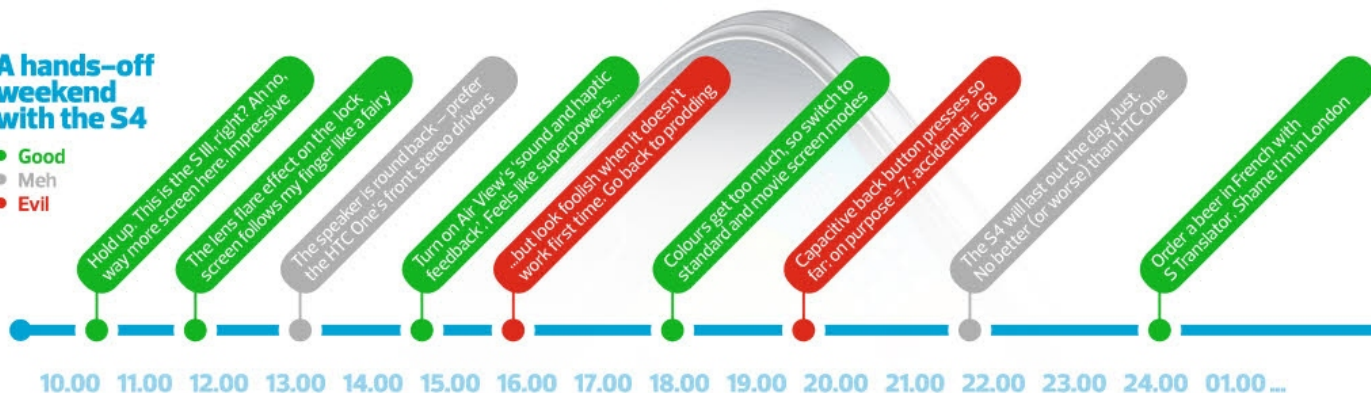
Fortunately, there's more to the S4 than meets the eye. Yes, it looks and feels strikingly similar to its predecessor – it's still all plastic, albeit the fancy polycarbonate variety – but it's been upgraded in every way. It has more powerful innards (UK S4s get a four-core Snapdragon chip, while the international version packs an eight-core Samsung chip), a bigger display with twice the resolution, a 13MP camera and unique talents aplenty.

But will that be enough? The Android field is more crowded than ever, with the likes of the Xperia Z, HTC One and Nexus 4 raising the bar for what a flagship phone needs to do. And it's not like the iPhone has gone away either. Looks like the S4 is going to need every one of those new tricks...



A hands-off weekend with the S4

- Good
- Meh
- Evil





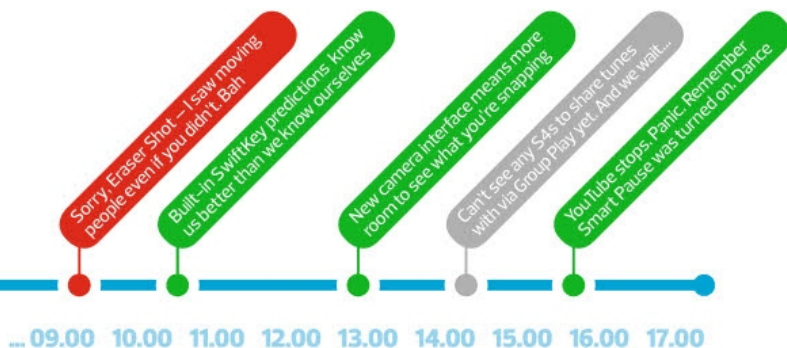
1 The S4 is too plasticky to break any hearts, but it's thin, light and impressively pocketable thanks to the slim bezels flanking its huge 5in screen. Plus, it's the only 2013 flagship with **microSD expansion**, **a removable battery** and an **IR blaster**; team that with its EPG widget and you're in TV heaven.

2 If you're a fan of crisp fonts and vivid colours, you'll love **the S4's 1080p Super AMOLED screen**. It's dazzlingly bright, with excellent viewing angles, and the pixels look as if they're sitting on the glass. That screen uses up plenty of juice, but its 2600mAh battery just about survives a day's use.

3 Despite packing 'only' four cores, the UK S4 handles intensive tasks such as Multi-Window (which runs two apps on screen at once) with ease. Similarly, our 4GEE SIM made the browser fly. **Oddly, prosaics such as the keyboard and gallery can lag** – we're hoping an imminent software update will fix that.

4 Launching with the latest version of Android (4.2.2) is a boon, and **this year's TouchWiz interface skin has a much slicker Samsung Hub**. All your info is front-and-centre, and although it's not as fuss-free as stock Android, it has useful widgets such as the TripAdvisor-powered S Travel.

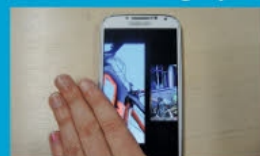
5 The 13MP rear and 2MP front cameras are among the best we've used. **Colours are accurate and detail is phenomenal for a phone**. It's also up there with the best in low light, and packs in fun features such as Dual Shot, which mixes front and rear shots in one. It's a gimmick, but a good one. Full HD video is great too: it's silky and crisp.



BIG BLOWER IS WATCHING YOU

■ Air Gesture

The S4's extra-sensitive screen enables you to swipe web pages and images, and switch tabs, simply by gesturing above it. It's neat, and with practice, reliable; it could even occasionally be useful (while cooking, say).



■ Air View

More subtle for the commute is one of our favourite tricks, Air View. Borrowed from the Note 2, the sensor tracks you hovering over video timelines, emails and gallery folders to see mini-previews or magnify web pages. It works well up to about 2–3cm away.



■ Smart Screen

Samsung's eye-tracking tech wins the Most Likely To Come In Useful award, but in use it's hit and miss. Hands-free page scrolling is like magic... if you have the time to wait for it to notice your peepers. Smart Pause works about 50% of the time, stalling vids if you turn away.



■ S Health

Pedometer apps may be ten-a-penny, but the feature-packed S Health is well worth having all the same. There's a health board for goals, plus snack-tracking, temperature and humidity sensors and step-counting tools. This is one health-conscious smartphone.



follow Sophie:
@sophiecharara

NOW
ADD
THIS



Samsung S Band

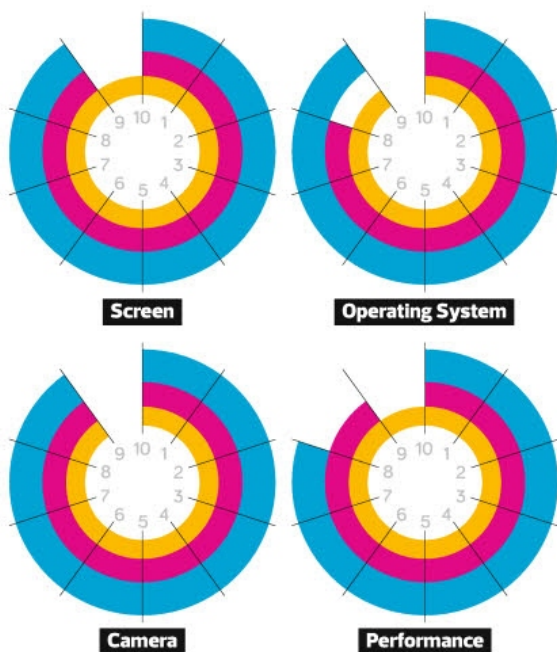
Samsung must've given its crystal ball a spitshine, as health tracking is all the rage for 2013. Strapping the S4 to your arm isn't ideal, so Sammy's Nike FuelBand rival may be a better bet. It tracks your running sessions (miles, calories) and syncs back to your phone. £90 / samsung.com

versus

SAMSUNG GALAXY S4 VS HTC ONE vs IPHONE 5

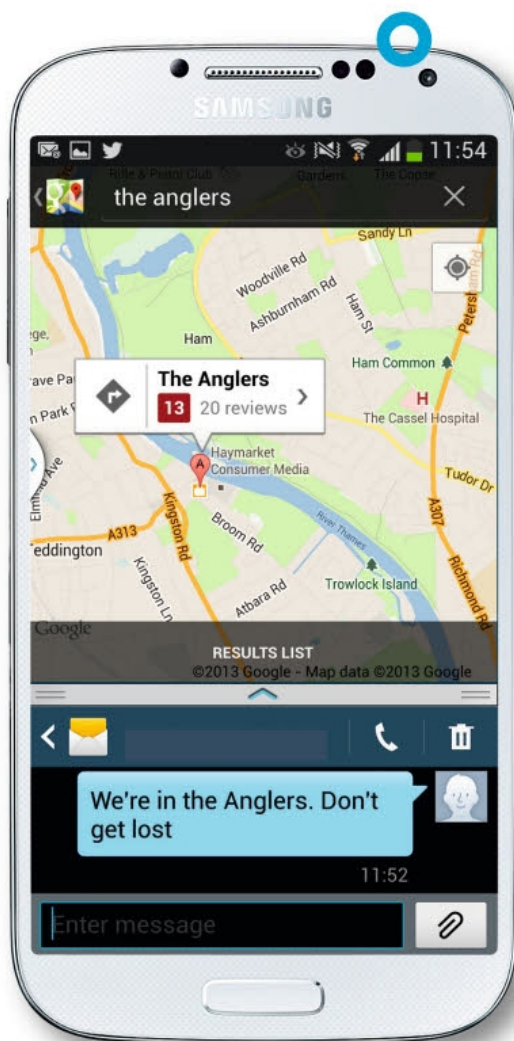
If you're impatient for the future, the smart, nearly touch-free S4 could be your dream handset. Its cute tricks don't always work, but when they do they're great, and even without them you have a killer handset. It's not quite sexy enough to stop us reaching for the HTC One, though: you'll find excuses to stroke that all-aluminium beauty. We'd choose the HTC's screen, too: it's smaller, despite the One being bigger than the S4, but its contrast and natural colours make the S4's look gaudy. At the time of writing you'll also get a smoother Jelly Bean

experience from the One, although benchmarks say the S4 is the more powerful device. Where the S4 trumps the One is with skills such as Multi-Window and expansion: you can stick a 64GB microSD in it if you need to. Both phones make the iPhone 5 look small and staid. Apple's App Store still thrashes Google Play, and the iPhone's camera skills remain a force to be reckoned with, but iOS feels old in comparison to Android's info-rich widgets. Which would we buy? For now we're torn; see next issue for our definitive Supertest.



Tech specs

Display 5in, 1080x1920 (441ppi)
OS Android 4.2.2 with TouchWiz
Processor Quad-core Qualcomm Snapdragon 600 @ 1.9GHz
Storage 16/32/64GB (+ microSD up to 64GB)
RAM 2GB
Camera 13MP, 1080p (rear); 2MP, 1080p (front)
Connectivity Wi-Fi, Bluetooth 4.0, 3G, 4G, IR, NFC, MHL 2.0
Battery 2600mAh
Dimensions 136.6x69.8x7.9mm
Weight 130g



STUFF SAYS

Big, smart and sensor-packed, the S4 is an eye-widening slab of future tech ★★★★★



■ Download the Stuff iOS app for 360° photos of the S4 and our full video review

■ Visit www.stuff.tv for the extended S4 written review

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SONOS

SanDisk

TECHNOLOGY
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PCFormat
★★★★★



PC GAMER
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★★★★★

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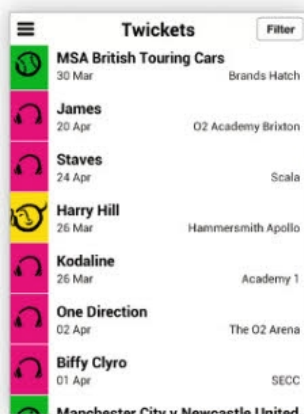
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¹ As compared to 7200 RPM SATA 2.5" hard drive. Based on published specifications and internal benchmarking tests. Open to residents of Great Britain, aged 18 years or over only. Entrants must purchase one (1) SanDisk Extreme, SanDisk Ultra or SanDisk SSD (sometimes termed SanDisk 'Pulse') product in 120GB and above capacities from any of the following participating Great Britain resellers: Scan, Ebuyer, or Dabs in order to be eligible to enter the Prize Draw. Proof of purchase must be retained. Internet access is required. Entries must be submitted between 00:01 GMT/CET on 19th March 2013 to 23:59 GMT on 21st June 2013. See www.aboutsandiskssd.com/playharder-uk for full terms. SanDisk and SanDisk Ultra are trademarks of SanDisk Corporation, registered in the United States and other countries. Other brand names mentioned herein are for identification purposes only and may be trademarks of their respective holder(s). © 2013 SanDisk Corporation. All rights reserved.

App:roved

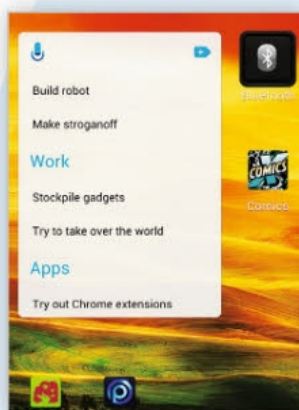
Stuff-certified apps for...

Gig goers
Twickets

Not even the opening bars of your favourite cocaine-funk classic will make you feel as warm and fuzzy as arranging with a fellow gig-goer to buy a ticket or two at face value minus booking fee, or even for free.

Social net workers should love Twickets because it's so simple: search for sports, theatre or music tickets by area, date and event then finalise things via Twitter. Plus, it sometimes brings up more results than rival websites, and touts stay away as there's no profit in it, so all that's left is for the devs to make a bouncing app baby with Songkick.

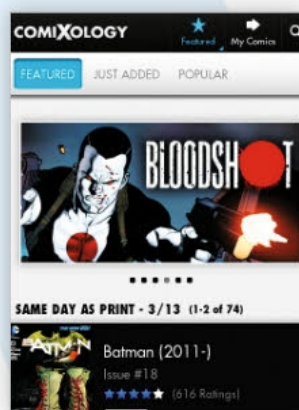
Efree / iOS, Android
Stuff says ★★★★★

List makers
Any.DO

The highest praise we can give to a to-do-list-making app is that it's unobtrusive, intuitive and keeps life simple. Which is why we love Any.DO's basic Today/Tomorrow/Upcoming/Someday options.

Its features are spot-on: voice dictation, pulling in contact details when you enter 'call' or 'message' into a task and a satisfying swipe for your completed tasks. Android gets a scrollable, resizeable widget and the Chrome extension displays browser-based reminders, picking out words in Gmail threads to suggest new items. Magic.

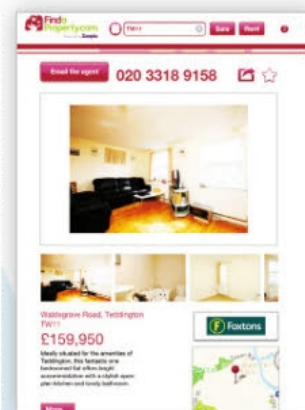
Efree / iOS, Android
Stuff says ★★★★★

Superheroes
Comics

With more comics than Tony Stark has gadgets, this app is a must for those partial to costume-based adventuring. The 30,000-strong store includes hundreds of Marvel, DC and IDW titles from 69p, with some surprising freebies to boot.

Best on the iPad, Guided View takes you through the panels in slick fashion, each filling the screen nicely. There is just one niggle: on Android, prices are in dollars until you reach Google Play check-out. Plus the wallet-draining potential: the next issue pops up straight after the last page. Tempting.

Efree / iOS, Android
Stuff says ★★★★★

Movers/shakers
FindaProperty.com

Moving house wouldn't be as stressful if we travelled as light as our prehistoric cave-dwelling forebears. Damn you, gadget collections! Only kidding – our modern lives have been vindicated by this house-hunting app.

It's useful and totally addictive: its map view repopulates with suitable properties as you drag it around, while Camera View for iPhone cleverly uses AR to overlay properties within a half-mile radius onscreen. And with tons of search results from Zoopla, you'll soon locate the cave of your dreams.

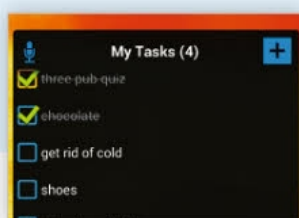
Efree / iOS, Android
Stuff says ★★★★★

Also consider...

**StubHub**

Chock full of features, from seeing the view from your seat (iPhone only) to price filters and maps of nearby restaurants, StubHub's Achilles' heel is that tickets can be sold above face value. So you might get a good deal, but it doesn't feel as pure as Twickets.

Efree / iOS, Android
Stuff says ★★★★★

**Astrid Tasks & To-do List**

Old-timer Astrid has easy-to-organise lists, integration with Google Tasks, and customisable notifications. But its best trick is sharing lists; click 'who' while editing to involve friends via email. A little ugly but it works superbly.

from Efree / Android
Stuff says ★★★★★

**Comic Zeal Comic Reader**

For those with existing libraries, Comic Zeal is the best side-kick. Load CBZ/CBR/RAR/ZIP and PDF files via iTunes to keep things tidy, create reading lists and lock zooms to hide borders. If your files are in Dropbox, try ComicGlass instead.

£2.99 / iOS
Stuff says ★★★★★

**Rightmove**

Property previews on Rightmove's great smartphone map view show extra detail, although sub-menus can be a little fiddly to filter on a 4in screen. The iPad app suffers from no such issues and adds speedy sliders and pop-up Street View – helpful if you don't know the area.

Efree / iOS, Android
Stuff says ★★★★★

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5 OF THE BEST

TOUGH CAMS

Drop it, dunk it, crush it, freeze it: like Chuck Norris in gadget form, a rugged camera can't be killed. But which would we take adventuring?



Go fish

Add an FCON-T01 fisheye lens via the CLA-T01 adapter for super-wide angle shots. The TCON-T01 telephoto add-on is less effective.

WHAT TO LOOK FOR

● TOUGHNESS

Stallone or Norris? Check how water-, shock-, freeze- and crush-proof it is before buying.

● EASY OPERATION

Using it in the cold? Then you'll want it to be glove-friendly. Try it out if you can.

● GPS

Useful for tagging your snaps. Not all of these cams have it.

Olympus Stylus Tough TG-2

The contender

The porthole-style frame around the TG-2's lens is one of the few clues to its ruggedness. And it's not just for show: unusually for a tough cam, it enables you to add a telephoto or fisheye lens via a converter. Elsewhere, it's less of a spec-spectacular than its rivals, although the intriguing super-macro mode will prick up the ears

of insect enthusiasts. The mode dial is also a welcome feature that's absent from its rivals here, assuming it remains watertight; it did throughout our tests.

Tough enough?

The TG-2 beats the others here for some aspects of image quality, with better depth and exposure control. That macro mode is also

great, almost microscopic. But when viewed up close, shots can lack detail and video isn't perfect due to a juddery zoom. The two doors with titchy double locks are a tad fiddly for us, and build quality isn't perfect: the porthole became loose in transit and fell off in the water while we were testing. Fortunately, that resulted in nothing more than a bit of misting. Phew.

Tech 12MP ● 4x zoom ● 1080p@30fps video ● 112x67x29mm ● 230g Price £330 / olympus.co.uk

STUFF SAYS It can be beaten on stills and video quality but the TG-2 has bags of creative potential ★★★★★

Nikon Coolpix AW110

The contender

With a fetching camo finish, metallic shell and sturdy push/twist locking mechanism on the connection door, there's a military-grade feel to the AW110. Army chic not for you? Coloured models are also available, as is a *Splinter Cell*-style all-black version. It's packed with tech, including a barometer to indicate what the skies have in store and an altimeter and depth gauge to track your highs and lows. It also connects to your Wi-Fi network, although in use that proved more hassle than it was worth.

Tough enough?

The few niggles are common among all the cameras here – non-standard USB port, zoom easily pushed by accident – so don't really hold it back. In fact, it wins out thanks to its picture quality, which delivers excellent detail and colour reproduction. Video, limited to 30fps, isn't as strong as the Panasonic but still impresses, and its super-close macro mode rivals that of the Olympus. Closing the deal is that door lock, which is tougher than the rest and far easier to open with gloves or frozen fingers.

Tech 16MP • 5x zoom • 1080p@30fps • 110x65x25mm • 93g
Price £290 / nikon.co.uk

STUFF SAYS ★★★★★

Tops for picture quality, and as a sturdy all-rounder it's unbeatable

Canon PowerShot D20

The contender

Beyond its potential to sneak in among a shoal of tropical fish without being noticed, it's hard to see a practical reason for the Canon's counter-ergonomic curved edge. Even so, a tap of the finger on that indent can be used to flick through pictures in playback mode. There's a metal plate on the front but the reliance on hard, cheap-feeling plastic gives the D20 a toy-like quality. On the plus side, it's been widely discounted since its release, so if you can pick it up for a toy-like price, that might be OK.

Tough enough?

At this end of the market we don't think it's unfair to expect more than the Canon delivers. Its still images are decent but not the best of the cameras tested here, often troubled by scenes with a high dynamic range. Video recording reveals a lot of detail if you're able to keep the camera still, but it quickly goes downhill once you start moving around. But ultimately, it's the tacky feel and feedback from the controls and latches that leave the D20 looking under-engineered and – at its £350 RRP – over-priced.

Tech 12MP • 5x zoom • 1080p@24fps • 112x71x28mm • 228g
Price £260 / canon.co.uk

STUFF SAYS ★★★☆☆

Passable stills, but build quality and video fall short of expectations

At full tilt
 Gloved snappers will appreciate the side-mounted 'action' button: push it, then tilt the camera to switch between stills and movie modes.

Re: cord
 The Canon's toughest feature is a carry cord with a screw-in attachment, which locks into a sturdy port on the corner.



Fujifilm FinePix XP60

The contender

The smallest snapper on test, the XP60 has an attractively pocketable scuba-styled body. If you're on a tight budget, it might tempt you with its high megapixel count (16MP) and 60fps video spec. That said, as smart as its casing appears, it's almost entirely plastic (albeit metal-effect plastic in places) and doesn't give off the whiff of unbreakability this test's pricier tough guys have. And although you can dig into some scene modes via the menus, at heart this is a simple point-and-shoot.

Tough enough?

Still images are quite respectable given the price. While not the best on show it does push the Canon into last place, thanks to superior colour and exposure balance, and good definition at pixel level. Unfortunately, the video quality is by far the worst here: detail is low, the jerky zoom motor can be heard in quiet moments, movement is jittery and the autofocus and exposure control become easily confused. However, if you want a cheap compact to throw around, the XP60 is worth considering.

Tech 16MP • 5x zoom • 1080p@60fps • 104x67x26mm • 183g
Price £160 / fujifilm.eu

STUFF SAYS ★★☆☆☆

A good-value knockabout snapper if video is of no concern to you

Panasonic Lumix DMC-FT5

The contender

This Pana is proud of its 50:50 brawn-to-brains ratio and dares to be taken to extremes. All bolts, bevels and cut-off corners, it's a handsome brute. But it's no mere musclehead: the DMC-FT5 adds a hydro-barometer (for scuba-depth tracking) and altimeter to standard GPS awareness, with Wi-Fi, contactless NFC image transfer and smooth 50fps HD video recording. Special shooting modes include a range of artsy effects (which are also available in video mode), as well as sweep panorama and timelapse.

Tough enough?

Overall picture quality falls just short of the Nikon in most cases, wanting for a little more detail, but it generally beats the Olympus when viewed up close or printed large. Video at 1080p@50fps is superb, making this a clear winner for anyone involved in adventurous TV work. As is common, Wi-Fi operations are too awkward in use to be a time-saver, but having the ability to ping a single image to a smartphone via NFC is neat – just run the app on your phone and bump them together.

Tech 16.1MP • 4.6x zoom • 1080p@50fps • 109x67x29mm • 214g
Price £350 / panasonic.co.uk

STUFF SAYS ★★★★★

Superb video and stills from a chunk of tech you can take anywhere

Shut up

The door lock is a more cheaply made variant of the Nikon's, and while it won't come loose, it's stiff and awkward to open.

Lockdown

A double-locked door that's unlikely to flip itself open in your pocket keeps all of the camera's connections dry and dust-free.



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how the Kensington®
Proximo™ works



TESTED RENAULT ZOE

EV DOES IT

We love Renault's Twizy, but with just two seats and no windows it's a bit niche. Not so the Zoe – a stylish electric supermini that might just be the future...

■ Finally – an electric car that drives beautifully but doesn't cost a fortune. The Zoe is just £13,650 with the government's electric car grant taken into account, although you'll have to pay £70 a month to lease the battery. Still, Renault will replace that for free if it develops a fault or drops below 75% efficiency. Which is nice of it.

■ Forget about the electric tech for a minute and what you've got here is a practical supermini. With five doors, five seats and a generous boot, it's a great family run-around... wait, don't run off screaming "boring!" just yet. It also looks subtly – and suitably – futuristic and has a techy cabin complete with an app-tastic 7in touchscreen as standard. Phew.

■ Most importantly, the Zoe is an effortless drive. There are no gears, so you just point and go – and it goes a lot quicker than we were expecting. Alright, so it's no supercar and the soft suspension means it doesn't attack corners, but it does provide a really smooth, relaxing driving experience.

■ The Zoe's official range is up to 130 miles, but in real life you'll get around 90 – we certainly did. If you can find a public quick-charge point, the battery will get an 80% boost in 30 minutes, while the free British Gas home Wall-Box will charge it fully in three and a half hours.

Tech 0–62mph in 13.5 seconds, 84mph max, 60–90 mile range

Price £13,650 + £70 per month battery rental / renault.co.uk



Zoe: on the road to app-iness

In-car apps...

The Zoe is the first car to get Renault's R-Link, a bespoke version of Android accessed via its 7in screen. The app store is thin right now but it will grow, with TomTom already on board. You can access your phone's media via Bluetooth, too.

...and out-car app

The Zoe Android/iOS app allows you to analyse the efficiency of your driving using your smartphone. It also lets you pre-heat or pre-cool the car to a set temperature while it's connected to the mains, saving your battery for actual driving.

STUFF SAYS Not for boy racers, but for anyone else the Zoe is a green dream ★★★★★

Why the electric car is still your second ride... for now, anyway

Tom Parsons



Range is still the EV's Achilles' heel. The Zoe's 90 miles will satisfy most commuters, but unless you're OK with bi-hourly services stops on longer jaunts, you'll be needing a petrol drinker now and again, too. Fortunately, battery tech is improving: Hitachi Maxell says it has already worked out how to cram 60% more juice into its lithium-ion cells. For now, there's always the £30k Ampera... and service station pasties taste better than ever.

TESTED TV STREAMING SERVICES

SCHEDULE SMASHERS

Live TV is finished, left on the ropes by DVD boxsets then knocked out by watch-when-ever streaming. But which of these services is the new champ?

1 Lovefilm Instant

What's on the box?

Having joined most of the world in moving on from DVD rentals, UK-based Lovefilm has gifted us with a streaming service at a cost of £5 per month. The old device limit has been removed, so you can register your account on as many as you can afford and stream to three concurrently, should you happen to be a spider-eyed multi-tasker. Or, more likely, wish to have the service available in multiple rooms of the house at the same time.

Stream of your dreams?

Clearly movies are a big thing on Lovefilm – the clue's in the name – but our interest here is in TV shows, and, the odd exception aside, it's an area where it falls short of Netflix. Lovefilm Instant also stumbles when it comes to user experience, which lacks the slickness of its subscription rival; everything feels a little sluggish, from skipping forward and back to searching for titles, especially on PS3. It comes up second best in picture quality too, even after Netflix's Super HD mode is taken out of the equation – Lovefilm looks rather murky in the blacks and soft overall. But we can't let ourselves get too critical because it remains a very good package.

Works with Android, iOS, web, PS3, Wii (U), Xbox 360, Smart TV (Cello, LG, Samsung, Sony)

£5 per month / lovefilm.com

STUFF SAYS

Still a great service, but Lovefilm Instant lags behind its main rival for TV choice

★★★★☆

2 Netflix

What's on the box?

We're sure it's nothing personal, but Netflix seems intent on killing off traditional TV. By buying the rights to the Kevin Spacey-led *House of Cards* and series four of *Arrested Development* it's got genuine exclusives that you won't see on network TV – or on any other service here. The previously underwhelming film selection is now much improved, there's a new Super HD option and it's available on loads of devices for £6/month.

Stream of your dreams?

There are still gaps in the Netflix TV catalogue; for instance, if you fancied checking out the remake of *Battlestar Galactica* (which should be mandatory, in our view), then you'll need to pursue those Cylons elsewhere. But overall, Netflix's TV content is the best on the market. It's great to use, too: the interface is easy on the eye and easy to navigate using any of the myriad devices the service is available on. Image-wise, the automatic scaling works nicely and the HD picture is sharp and detailed. And that's before you get to the awesome 1080p Super HD option, although this resolution is only available if your ISP has signed up to Netflix Open Connect.

Works with Android, iOS, WP8, web, PS3, Wii (U), Xbox, Apple TV, Roku, Smart TV (LG, Pana, Sammy, Sony)

£6 per month / netflix.com

Loads to watch and loads to watch it on: a Netflix subscription is essential for TV lovers

★★★★★

3 Blinkbox

What's on the box?

Like a stray cutlet of horse in the lasagne of streaming, Tesco's pay-as-you-go on-demand service lets you rent or buy movies and buy TV shows (usually for £1.89 an episode). Once paid for, you're able to stream a show directly or download it to your computer – as long as it's a PC and you have no issue using Windows Media Player. Your library is available on other devices, but downloading is not supported on them. Pah.

Stream of your dreams?

Blinkbox's big advantage over iTunes is the number of devices it's available for, which makes it a real shame that downloading isn't more widely supported, especially when it comes to tablets – an X in the negative column if you're a regular traveller. Blinkbox's TV library is also less comprehensive than the iTunes catalogue, although there is the odd notable exception: this is the only place other than Sky where you'll find *Game of Thrones* and *Boardwalk Empire*. But letting the side down is the fact that HD isn't supported at all, so the presentation is rather soft and pixellated, giving things a Value range feel when shows are stretched across a big screen.

Works with Android, iOS, web, PS3, Xbox 360, Smart TVs (LG, Philips, Samsung, Toshiba)

from £0.99 / blinkbox.com

Blinkbox clearly has potential, but despite some catalogue coups it isn't there yet

★★★★☆

4 iTunes

What's on the box?

Rumours of an iTunes subscription service continue to look wide of the mark, with Apple sticking to its pay-as-you-go formula. Shows cost £1.89 (SD) or £2.49 (HD) per episode, or you can opt for a season pass at a slight discount. As we've come to expect, content is only available on Apple devices and PCs running iTunes, but once you've bought something it is at least yours to use on as many of your iThings as you choose.

Stream of your dreams?

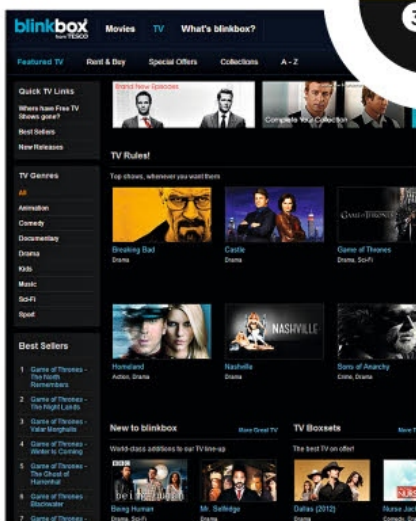
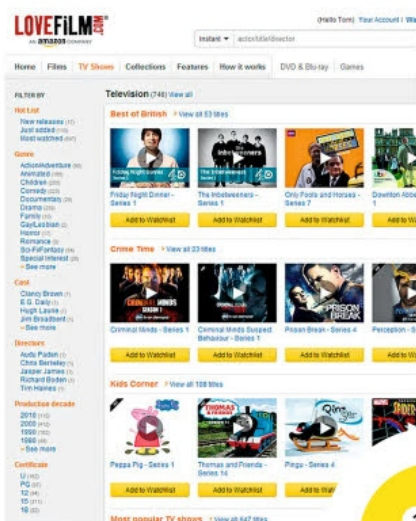
It's not without the odd gap, but the iTunes TV catalogue contains more *Stuff* favourites than any other service here. Navigating and downloading has Apple's familiar 'it just works' appeal (does anyone not know how to use iTunes at this stage? Anyone? Bueller?) and you don't have to wait for the whole thing to download before you start watching – on a fast connection you'll be ready to go in about 30 seconds. Image quality is excellent, with lovely, natural colours and bags of detail, especially if you enable 1080p in preferences. The only downside is cost, as pay-as-you-go is an expensive business. But this is Apple we're talking about here, so y'know...

Works with iOS, PC, Mac, Apple TV... and that's it

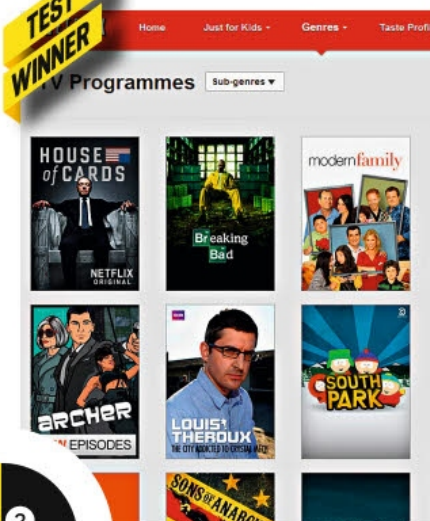
from £free / apple.com/uk/itunes

Pricey and not as widely available as its rivals, but still the best option for pay-as-you-go TV

★★★★★



TEST
WINNER



Have your cake and eat it?

So Netflix wins for streaming and iTunes is the best for pay-and-go. Which device has both? Apple TV, yours for £100. Also watch out for Vdio (vdio.com): with a big catalogue and support for lots of devices, it could be a contender.



WHAT WE WATCHED



Boardwalk Empire

Available on: **Blinkbox**

The Sopranos set in prohibition-era Atlantic City is a decent way to summarise this HBO big-hitter, except with more action, more betrayal and more Steve Buscemi, which can only be a good thing.



Brass Eye

Available on: **Lovefilm, iTunes**

Chris Morris' controversial and hilarious news satire is as relevant now as it was when it was first shown in 1997. A must-watch for those not easily offended. Just don't do so high on clarky cat.



House of Cards

Available on: **Netflix**

This Netflix exclusive is a David Fincher-directed A-list story of Washington DC-set political intrigue, back-stabbing and blackmail. It's like *The West Wing*'s evil twin and it's totally brilliant.



Twin Peaks

Available on: **iTunes**

David Lynch's small-town weirdfest was the quintessential early-'90s watercooler show. Addictive and compelling, despite a disappointing nosedive in quality before the show was cancelled two seasons in.

RISE OF THE TRANSFORMERS

PC gaming. Proper Photoshop. Grown-up Word. A new generation of Windows 8 hybrids promise desktop skills in a slim tablet form

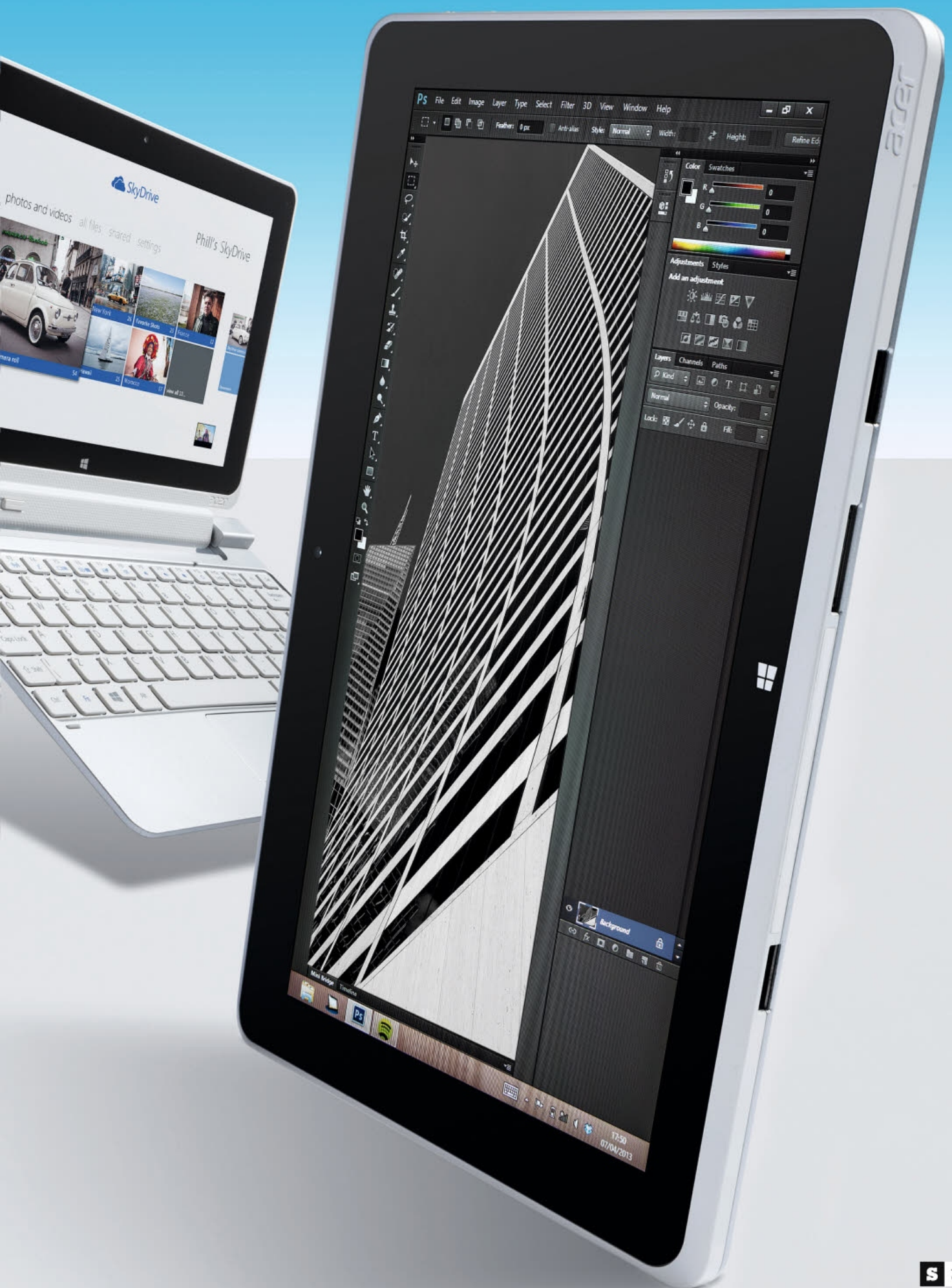


Shiny icons and intuitive interfaces are all well and good but you can't do proper computing on an iPad-sized tablet, right?

Wrong, wrong, wrong. Windows 8 has arrived, bringing with it both point-and-click desktop and touch-friendly Metro interface modes, thereby ushering in an era in which you can do the important stuff *and* fling around angry birds, no matter where you are.

The first batch of portable Win 8 tablets out of the blocks can run any software you like, offer endless input/output possibilities and keep going 'til bedtime thanks to power-saving Atom chips. Well, that's what the marketing bumf says; whether any of them really manage to squeeze the power of a desktop into a slim, 10in rectangle remains to be seen. So that's what we've set out to discover. Read on and find out with us.



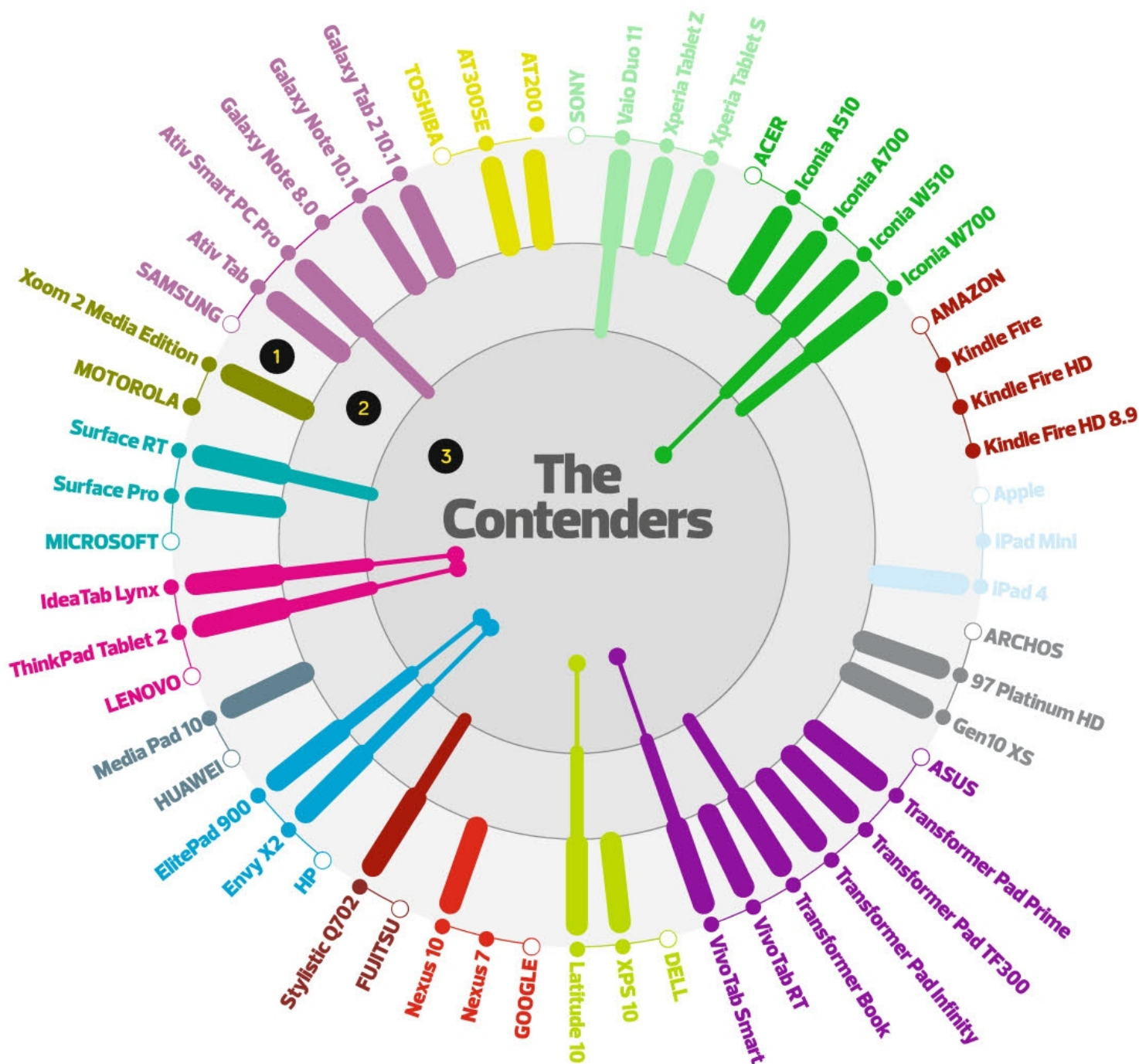


Gadget percolator®

Here's how we narrowed down the tablet field to settle on our chosen few

KEY

- 1 **Size** We're looking for iPad rivals: slim tablets with screen sizes between 9 and 12in
- 2 **OS** We need desktop apps, which means Windows 8: no iOS, Android or Windows RT
- 3 **Battery life** Must last the day like an iPad. That rules out Intel Core processor tabs



What we tested



● Acer Iconia W510

The sell This Iconia tablet acts like netbooks never died, with a compact 10in form, 720p screen and a low price tag. And if that's not enough to win us over, a battery-filled keyboard dock that's light enough to take out with us might just do the trick.



● Lenovo ThinkPad Tablet 2

The sell The only tab here that runs the specced-up Win 8 Pro OS says docks don't have to have all the connectivity fun: this business-minded tab packs ports into every millimetre of its crafted edges and has tasty specs on the inside too.



● Asus VivoTab Smart

The sell Windows 8 meets the Transformer series as Asus takes its expertise at Android hybrids and slaps a 'VivoTab' sticker on it. A 10.1in HD screen and Atom heart plus a nifty magnetic cover and Bluetooth keyboard complete a set-up with plenty of potential.



● HP Envy X2

The sell The Envy X2 looks well placed to take on full-sized laptops, rocking a detachable 11.6in screen, rather large keyboard dock, 64GB of storage and a brushed aluminium finish. Add in next-gen tricks such as NFC and we may have a winner.

And what didn't make it in

● HP ElitePad 900

HP's other Windows 8 tablet is another dockable, Atom affair, but with a screen that's 1.5in smaller than that of the Envy X2. Sounds good, but it's really aimed at business users.

● Lenovo IdeaTab Lynx

The ThinkPad 2's more affordable little brother has a dock that adds power rather than just connecting via Bluetooth. Sadly, it wasn't available in the UK at the time of going to press.

● Dell Latitude 10

A nicely priced slate with a connection-heavy productivity dock, this Dell has Win 8 smarts and optional 3G but is another that puts business firmly before gaming and entertainment.

THE VITALS

What a Win 8 hybrid needs to get right to earn a spot in our bag

ERGONOMICS

There's a sea of Windows 8 hybrids out there, so you'll need to keep your eyes peeled when wading through it. Your perfect fit might be a tab with a dockable keyboard or a mini-Ultrabook upstart with a rotating hinge. Maybe a sliding screen is more your thing. Whatever you choose, make sure accessories are compact and sturdy too.

SCREEN

A tablet is 95% screen, so it's a serious deal-breaker when things don't look so pretty on it. Always demand that it's sharp and bright with great contrast, and that it's highly responsive to the touch.

PERFORMANCE AND BATTERY

All the Win 8 devices here run on Intel's low-power Atom processors. So while they lack the muscle of 'proper' Core PCs, they enjoy better battery life. Our minimum requirement is that they navigate the finger-optimised 'Metro' side of Win 8 without stutter and are able to play movies and music and browse the web smoothly. But we're also interested in how they cope when we throw video editing, games and multi-window multi-tasking at them.

CONNECTIONS

Can you use your Wi-Fi to piggyback on your mobile's 4G or would you like it built in? Is a USB port crucial for working on the fly or will the cloud do? Connectivity shouldn't be an afterthought – make sure your tab works with the kit you need it to.

Some things are better in pairs – and the W510 is one of them

If you're looking for a hybrid tablet that gets the basics right, the W510 is a fine choice. It might not make the best first impression, but it soon wins you over, with bags of connections, speedy performance and great battery life. Everything, in fact, is simple and accessible – the tablet clicks into the keyboard dock

adding battery and a USB port, and it's well priced for the pair. With a faux-metallic and white plastic finish, the W510 isn't as easy on the eye as the soft-touch Asus or imposing Lenovo, though, and there are other flaws in its design. While both bits of it are relatively light, it's annoyingly top-heavy as a hybrid, with a keyboard

dock that just doesn't feel as solid as the tablet part. We do like its ability to rotate on its hinge, though, and the 10.1in screen itself is a crisp 1366x768 effort. When it comes to flexing some tablet muscle, you'll eke out a fair bit from its Atom brain. It handles basic Photoshop fixes, video streaming and navigating around

full-fat software more smoothly than most of the others here, and it uses its battery well too: as a standalone slate it'll last you the day, and with the keyboard docked, it'll go overnight too. So while the Acer won't do everything your desktop PC can do, it's a tidy on-the-go tablet that comes into its own as a duo.

● **ACER ICONIA W510 £490 (INCL. DOCK) ★★★★★**

1 The rotating hinge is genuinely useful if you're using the W510 outdoors, enabling you to choose the best angle to avoid glare and reflections.

2 There's just 32GB of storage to play with, the lowest here, so you'd best slot in a microSD card sharpish. Fortunately, a 32GB card only costs £15.



ERGONOMICS Your flexible friend

The Acer is the neatest and most compact of the bunch. The keyboard is a bit cramped but still usable – about the same size as that on a netbook – and the hinge swings round 295°, turning it into a useful bedtime stand.



SCREEN Contrast fortunes

At the same 1366x768 resolution as the rest, the W510 has a fairly crisp display; as sharp as you'll get on a W8 tab this size. Contrast is great, so whites really pop, but colours in Xbox Video can look overcooked.



PERFORMANCE It got (some) game

The W510 is impressively hiccup-free. It handles almost all you can throw at it, including casual games such as *Hotline Miami*, with ease – although modern FPSs (any many older 3D titles such as *WoW*) are out.



CONNECTIONS A question of ports

As a standalone tablet you'll miss the USB2.0 port, but as a pair the W510 and keyboard dock have you covered – with microUSB and microHDMI, too. Of course a full-sized SD card slot would have been nice...



This is a multimedia monster dressed in tablet clothing

Asus may have kickstarted the hybrid trend with the Eee Pad Transformer, but it's the VivoTab Smart that feels most like a traditional slate here. It's one of the lightest, alongside the Acer, and is the only device that doesn't physically dock into a keyboard.

Fortunately, Asus has packed a lot of tech into this £400 tab. You

get a generous 64GB worth of storage (plus 32GB free Asus WebStorage thrown in), a superb 10.1in 720p display and the same battery-friendly Intel Atom processor found in its rivals. The VivoTab is also the most comfortable to hold as a tablet, with curved edges and a matte plastic back that, while a little

creakier than we've come to expect, no doubt helps to keep the price low.

If the limits of the iPad's closed ecosystem leave you frustrated, the VivoTab is a great alternative. For movies and music on the go, without the iTunes ball and chain, we love it. Its performance at 'real' computing tasks is shown up by

the others, but in an emergency you'll be safe in the knowledge the VivoTab can handle word and basic image editing on the fly. The lack of a full USB port is a bit of a killer, though, as you'll rack up more situations where, tablet in hand, you'll wish for a real computer. So, as a tablet it rocks, but as a hybrid it falls a little short.

● **ASUS VIVOTAB SMART £400 (+£90 FOR DOCK) ★★★★★**



1 The VivoTab's battery will last the day, but when it's dead, it's dead: there's no dock to charge it and no way to swap in a spare. So charge before you go.

2 The 8MP rear camera and 2MP front-facer both take good stills and video, which you can then tweak at full size without relying on limited apps.

ERGONOMICS

Stop the docks

The Asus has to make do with the magnetically attached Bluetooth TransBoard where the others have lap-friendly docking keyboards. That means no extra ports or battery life. The cover/stand is nice though.



SCREEN

Natural beauty

For movie connoisseurs who like actors to look natural rather than perma-tanned, the Asus is a good bet. Its 16:9 screen is sharp and accurate, with impressive viewing angles. It's not the brightest though.



PERFORMANCE

Slow but steady

By no means a shirker for everyday multi-tasking and web browsing, the Asus does wimp out a bit when running PC games such as *FTL: Faster Than Light*. That capacitive Windows home button is a little sluggish, too.



CONNECTIONS

Size is everything

By tablet standards, the VivoTab is well equipped, with a microUSB (doubling as microHDMI) port, a microSD slot and NFC. But the lack of full-size USB ports makes accomplishing proper PC tasks a bit of a pain.



Like squeezing a proper PC into a sexy 10in rectangle

For a device that's supposed to be all about compromise, the Lenovo stands its ground like Dwayne Johnson in a tsunami. It's sturdy, with a rectangular shape that has a hint of the Microsoft Surface about it, and although the plastic flexes a little, it feels as if it'll survive a fairly hefty knock. Battery life is decent, lagging

slightly behind the excellent Acer and HP, but still giving you enough juice to stretch to a day's video, email and web browsing. And impressively, that's despite the fact that Lenovo has pumped up the brightness on the Tablet 2's brilliant 10.1in screen. It's also despite the fact that its keyboard dock is of the Bluetooth variety,

so there's no extra juice coming from that direction. At least it physically docks to the tablet part, giving it a clear advantage over the Asus.

Don't let the fact that the Tablet 2 warms up when it's overworked (or when charging) worry you, as a stutter or two aside it's the most capable device here.

Browsing the web is a breeze and true multi-tasking with resizeable windows in the desktop mode is handled without a problem. It also packs in plenty of connectivity options – including a SIM card slot – and has two decent cameras on board. Add in the digitiser pen and you've got more than enough ways to use it on the go.

● **LENOVO THINKPAD TABLET 2 £560 (+£110 FOR DOCK) ★★★★★**



PERFORMANCE A real do-it-all

Comparing dual-core Atom devices to the likes of full-sized Core i5 Ultrabooks will always leave the tabs trailing in the dirt. But of the four on test, the Tab 2 did the best job of masquerading as a fully fledged portable PC.

From creating documents in Office and sharing them via SkyDrive or Dropbox to installing and (patiently) playing half our Steam catalogue, the Lenovo found the power in its Intel guts to keep going when the others faltered. This is a great tablet for snap-happy types, as you can grab photos straight from your SD card with an SD-to-USB adapter, then organise and edit them with Adobe Bridge and Photoshop. You'll need to be patient with big files, but with an update installed you can even work on RAW images.

The digitiser is helpful for accuracy when using the pen tool, and because desktop versions of the likes of Spotify aren't designed for touchscreens, the stylus comes in handy more regularly than you'd expect.

ERGONOMICS

Oh you pretty thing

The Tablet 2 is one of the most attractive Windows 8 tabs yet, standing out from identikit slates with a black, blocky build and a curved left-hand edge to hide the digitiser. At 580g, it's lighter than the iPad 4, and with all of the ports on the tablet part you can get along fine without the

keyboard/cover. Well, unless you're doing any typing. The keyboard is a mixed bag: it slots together with the Tablet part, but only connects via Bluetooth, and it lacks the flexibility of the Acer's. There's also no trackpad – just an optical trackpoint – but that at least leaves space for roomy keys that are a pleasure to type on.





1 Pressing hard with the digitiser doesn't mimic your fingers, annoyingly, but you can use the button as a right click or to take a screen grab.

2 We'd always go for the Tablet 2's physical home button over the capacitive variety seen on some rivals. You'll use it plenty, saving precious seconds.



SCREEN Bright young thing

The Asus just steals the crown on colour accuracy, but the Tablet 2's screen is the brightest here by a mile, making it great for outdoor working. It's punchy, too, with top-notch contrast. It's a fingerprint magnet, though.



CONNECTIONS SIM city

All the ports you need are on the Tablet 2 itself, although USB hard disks need their own power source. It also has microUSB for charging, mini HDMI and a microSD slot. The ace up its sleeve? A SIM slot for 3G or 4G on the move.



Windows 8 got game

Tom Parsons

What most excites me about these Windows 8 tabs is what they mean for portable Steam gaming. *Tomb Raider's* not going to work, but awesome, less demanding casual crackers such as *Hotline Miami* and *Deadlight* will, and neither of those are on iOS or Android.

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It looks like a laptop, it feels like a laptop. It's not a laptop

Less anti-iPad, more shrunken down MacBook Pro, the Envy X2 has taken the larger route, with an 11.6in screen, almost full-sized keyboard dock and an eye-watering price tag.

Brushed aluminium is a big bonus and the HP puts the rest of the tablets on test to shame for premium weight and feel. Boot it

up, though, and there's an awful lot of space being wasted with those big bezels. Plus, as a tablet it feels light enough, but it's too unwieldy to comfortably hold with one hand while prodding with the other.

It might be bigger but it's not beefier: performance is adequate, sure, but the HP's dual-core Atom

innards make you wait for even the cursor to appear from time to time. Though not a deal-breaker, the 8MP rear camera takes pretty poor snaps indoors, too.

The HP has two main things going for it. The first is superb battery life, both as a standalone tab that'll last you the day and a hybrid that might make it through

a weekend. Secondly, it has a plethora of connections, meaning you can hook up your X2 to the telly with the full HDMI port and control it from your smartphone with HP's Remote app.

So it's not without its positives, but unless the bigger screen and keys are a must, the X2 is far too expensive to recommend.

● **HP ENVY X2 £800 (INCL. DOCK)** ★★★★★

1 NFC might seem an odd addition for a hybrid tablet, but HP is bringing out a mouse accessory that pairs via a simple tap of the X2's screen. Neat.

2 The X2 has some baffling design touches: the power and volume sit on the back and there are two headphone jacks as one is covered when docked.



ERGONOMICS

Keys to your heart

The Envy X2's dock has a full-sized keyboard with a great, textured trackpad that supports two-finger scrolling. The dock's hinge juts downwards, making for a raised typing angle on flat surfaces, but sore knees when on your lap.



SCREEN

A stretch too far

The screen is no stunner, stretching the standard 1366x768 resolution over a larger 11.6in display. Text can look fuzzy in Win 8 at the best of times, and the X2 doesn't help. Colours are vibrant, though, and viewing angles are OK.



PERFORMANCE

Softly does it

There's not much in it, but the HP trails the Lenovo and Acer in use, with a few crashes plus issues connecting to the Win 8 Store. Give it something gentle such as indie platformer *Limbo*, though, and it works a treat.



CONNECTIONS

The wrong place

Two USB2.0s, an SDXC card slot and full-sized HDMI port: so far, so excellent. Our main concern is that they're all on the keyboard dock, with just a microSD slot on the tab – not great if you want to travel light.



THE WINNER IS... Lenovo ThinkPad Tablet 2



The Lenovo is the best of a surprisingly good lot. In fact, our time with these

Windows 8 tablets was a bit of a revelation. None are perfect, and Atom's limitations are as easy to spot as a chunky toddler hiding behind a Jake Dyson lamp, but if you nudge any of these machines down the path of proper computing (writing documents, image and video editing, casual gaming) you'll be pleasantly surprised. Sure, you'll have to be patient, and such desktop software won't always look as pretty as full-screen, iPad-style apps do, but if you want finger-friendly fare, Windows Metro's apps are but a button press away. The versatility of these tablets is truly amazing.

As for our winner, it's a sexy slab which puts in the best performance and even comes in at a reasonable price – bearing in mind that a 64GB 4G iPad 4 is £660. The digitiser pen makes good sense with Windows 8 desktop mode, the keyboard accessory is a joy to type on and the Tablet 2 itself has ports aplenty. In fact, everybody's invited to the ThinkPad party, leaving the iPad out in the cold with only its adaptor minions for company. The bar for any slate trotting through our doors is now far higher. Jump, gadgets, jump.



+ Now add these

01 Microsoft Wedge Touch Mouse

This mini Bluetooth mouse is seriously handy if you're using the Tablet 2 on a flat surface. Flick and swipe it to scroll around Win 8.
£50 / microsoft.com

02 Lenovo ThinkPad Tablet 2 Sleeve

Shield your ThinkPad combo from life's nasties with this leather cover. They had us at the red stitching.
£26 / shop.lenovo.com

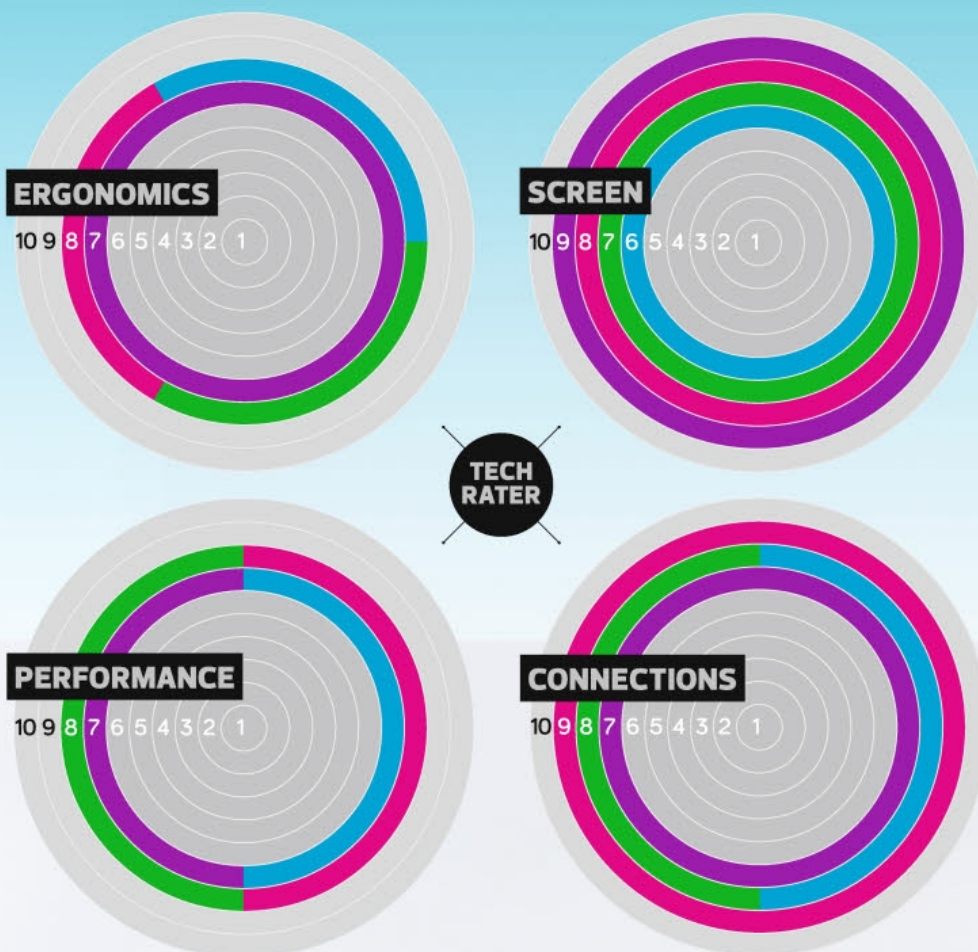
03 Fujifilm USB SD card reader

Stick this into the Tablet 2's USB port for easy photo loadage.
£4 / fujifilm.eu/uk



THE SUMMARY

● Acer Iconia W510
 ● Asus VivoTab Smart
 ● Lenovo ThinkPad Tablet 2
 ● HP Envy X2



WHAT'S NEXT?

We left Windows 8 hybrids with Core processors out of this test on account of their shorter battery lives, extra weight and bigger price tags. But that hasn't stopped us getting giddy about the imminent arrival of the Microsoft Surface Pro and Asus Transformer Book. These true tablet PCs will no doubt justify the extra zeros on their price tags with raw performance, while gadget laws decree that their successors will be faster, slimmer and cheaper too. In fact, when Intel's Core 'Haswell' processors come out later this year, we should see devices almost as small as those tested packing Ultrabook-level capabilities. Perhaps even an Apple MacPad. Exciting times.



follow Sophie:
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 email Sophie:
 sophie@stuff.tv

		Display	CPU	Storage	Connectivity	Battery (hrs)	Dimensions	
1st		Lenovo ThinkPad Tablet 2 ★★★★★ The days of underpowered tablet compromises are over: the Tablet 2 is the portable touchscreen PC we've been waiting for. £670 / lenovo.com/uk	10.1in, 1366x768 IPS, LED backlight	Intel Atom Z2760 dual- core @ 1.8GHz	64GB SSD	USB2.0, microUSB, mini HDMI, microSD, Bluetooth 4.0	10 (claimed)	262x164x 19.3mm; 938kg (inc dock)
2nd		Acer Iconia W510 ★★★★★ More than the sum of its parts, the W510 teams a capable tablet with an excellent keyboard dock for an impressive whole. £490 / acer.co.uk	10.1in, 1366x768 TFT IPS, LED	Intel Atom Z2760 dual- core @ 1.5GHz	32GB SSD	USB2.0, microUSB, microHDMI, microSD, Bluetooth	9 (claimed; 18 with keyboard dock)	258x167x 18.7mm; 1.26kg (inc dock)
3rd		Asus VivoTab Smart ★★★★★ The VivoTab's lack of a proper dockable keyboard counts against it, but as a tablet alone it's one of the best Win 8 efforts. £490 / uk.asus.com	10.1in, 1366x768 720p IPS	Intel Atom Z2760 dual- core @ 1.8GHz	64GB + 32GB free Asus WebStorage	microUSB, microHDMI, NFC, microSD, Bluetooth 4.0	9.5 (claimed)	262x171x 14.7mm; 870g (inc dock)
4th		HP Envy X2 ★★★★★ The hefty HP has an 11.6in screen and brushed-aluminium body, but its innards aren't so beefy, so it falls short here. £800 / hp.com/uk	11.6in, 1366x768 LED-backlit IPS	Intel Atom Z2760 dual- core @ 1.8GHz	64GB SSD	USB2.0 (x2), SD card, HDMI, NFC, Bluetooth 4.0	7 (claimed; 14 with keyboard dock)	303x206x 19mm; 1.41kg (inc dock)

🕒 816 HOURS WITH THE

BLACKBERRY Z10

Esat Dedezade spends five weeks with BlackBerry's make-or-break smartphone. But was it good enough to melt his Android-loving heart?

E480 / uk.blackberry.com



DAY 01

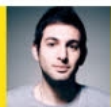
Things get off to a bad start: I unbox the Z10 only to find that some joker has replaced it with an iPhone 5. OK, not really, but if imitation is the sincerest form of flattery, Apple must be flattered indeed. I give it my standard bending and caressing test, and despite its all-plastic body, instantly warm to its dimpled, rubberised back and solid build. Removing the back panel reveals a microSD slot and removable battery — welcome sights for a gadget slave driver such as myself.

Turning it on fires up a tutorial

right from within any app. All of my messages combined into an inbox-on-steroids, without having to tap a bunch of buttons to flip between accounts? Messaging nirvana.

After a bit more swiping (it's pretty addictive), I notice a few things wrong with the screen. Firstly, it feels tiny compared with my gargantuan Galaxy Note. Secondly, it's very dim. I attempt to do something about the latter problem, but even with the brightness cranked up my eyes crave more lumens. Sadface.jpg.

Maybe a trip to BlackBerry World will make me feel better. Or maybe not. There were 70,000



"It feels like buying a new car only to discover that the engine is hollow but for a panting hamster in a wheel!"

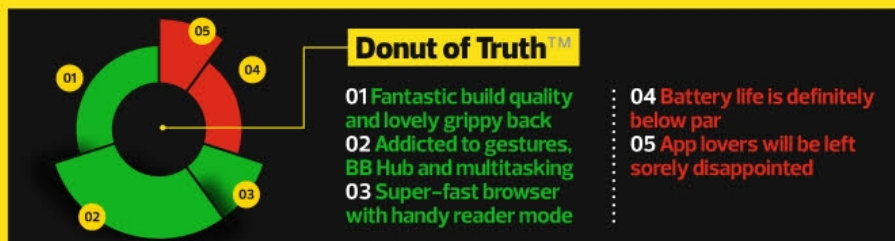
designed to teach me BB 10 OS' new gestures. Naturally, I skip it. But the Z10's icon-filled homescreen welcomes me anyway, and I let my experimental finger get to work. Swiping down reveals a settings and toggle menu — easy enough for a battle-worn Knight of Android. Straight into settings to load up all my email accounts, and boom: I've officially popped my BlackBerry cherry. It's worryingly easy to do.

A few haphazard swipes later and I chance upon the BB Hub, where all emails, texts and messages live. Turns out to get there I just swipe up and to the

apps promised at launch, but numbers alone do not a quality experience make. And my first impressions of BB World are pretty grim. It feels like buying a new car only to discover that the engine is hollow but for a panting hamster in a wheel. No Google Maps. No Skype. No WhatsApp. No Spotify. At least *Angry Birds Space* temporarily eases my woes.

The browser is great though, rendering Stuff.tv and desktop versions of heavy websites such as BBC.co.uk with ease. Plus it still supports Flash, and coupled with a 4G sim, it's seriously speedy.





Tech specs

Display 4.2in LCD, 1280x768 (356ppi)
CPU dual-core Qualcomm Snapdragon @ 1.5GHz
OS BlackBerry 10
Storage 16GB (+ up to 32GB microSD)
Camera 8MP, 1080p (rear); 2MP, 720p (front)
Connectivity Wi-Fi, Bluetooth 4.0, NFC, microUSB, LTE, microHDMI, 3.5mm
Battery (claimed) up to 305 hours standby (3G) / up to 10 hours talktime (3G)
Dimensions 130x65.6x9mm, 136g



DAY 02

The Time Shift camera feature, which lets you swap faces into group shots, is a winner. I'm even able to get perfect photos of my girlfriend's kittens with it – they're usually too focused on turning my hands into mincemeat to pose. It's a shame that slight motion blurring spoils my video footage of them fighting though.

DAY 03

In 2005, an oil depot in Hertfordshire exploded 10 miles away from my house. People woke up in a cold sweat in Wokingham, 28 miles away. I slept right through it. That's why I need five alarms in the morning. The Z10 limits you to one. Spot the problem? For the first time in my life, I can't blame the trains for my late arrival to work.

DAY 05

Either I was spoilt by the Note's 2500mAh battery, or something is seriously wrong. I had 46% left at lunch and I'm still having to recharge for my commute home. At least the Z10 is hot enough to warm my hands. That's normal, right?

DAY 10

I don't need a million apps. A few games, a journey planner and I'm happy. Plus, I've worked out how to



side-load Android apps: all it took was a PC, the free DDPB software and 10 minutes of my time, and I now have Google Maps for Android running on my Z10. It's a life-saver, as BlackBerry Maps lacks walking directions. Sadly not all Android apps are as easily converted.

DAY 15

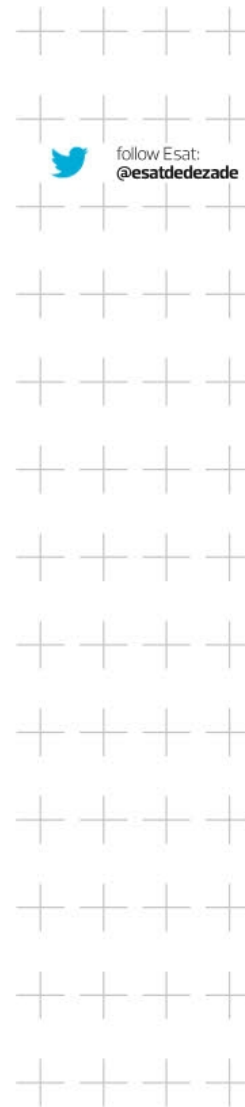
An alarm app fixed my oversleeping woes, but the trains are still rubbish, so I spend my lengthy journey writing a review on the Z10. I'm soon an unstoppable typing machine thanks to its excellent onscreen keyboard – it's as good as SwiftKey on Android. High praise.

DAY 22

I've finally cracked and bought the spare-battery-and-charger bundle. The Z10's battery life hasn't improved and I needed reassurance in case I found myself stranded on yet another slow-moving train.

DAY 34

I have phantom swipe syndrome. I swipe around every other device I use, so deeply embedded within me are the Z10's gestures. I'm addicted to them. I'm addicted to the insanely fast multitasking and instant Hub peek. I'm a slave to the red LED. I think I've become a BlackBerry user without even meaning to. And it feels good.



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STUFF SAYS

Not one for app lovers, but for multitasking and messaging, the BlackBerry Z10 is a beast

★★★★★

OLYMPUS

Your Vision, Our Future



MY OM-D

DAMIAN McGILLICUDDY



Minimal kit, maximum effect, is the mantra of multi award winning professional portrait photographer Damian McGillicuddy. Demanding the very best from the equipment he uses, the modern classic of the compact Olympus OM-D EM-5 is never far from his hand.

Yet whilst this Compact System Camera's stunning picture quality is what attracts professionals, the gorgeous retro styling plus affordable price point place the OM-D and its ability to deliver captivating, engaging imagery within anyone's grasp.

With Damian's portraiture taking in both fashion and glamour sprinkled with a liberal dose of sex, he describes the OM-D's appeal as "Dead simple: It's a well conceived and beautifully made piece of kit, coupled with superb optics. Multiply

that by a convenient form factor and you get great results and a pleasurable shooting experience."

ONCE MORE DESIRED

Photographing glamour girls and getting paid for it may sound like a dream occupation; for Damian McGillicuddy it's just another day at the 'office'. "You won't find me prancing around in latex at home", he assures us. The picture opposite is of LA-based Ulorin Vex – one of the world's top latex fashion models.

But it's not just the ladies that fuel the Lord of Latex's creativity. His working hours also include personal shoots for "most celebrities you'd care to mention" – including Beatles mainstay Paul McCartney – some of whom have likewise turned out to be OM-D owners. As a name in demand he is constantly working, with up to four shoots booked per week.

"I'm very lucky in that I've worked hard enough to gain a name for myself and now clients ring up and ask for something that's 'McGillicuddy-esque'."

In terms of the best lenses to twin with the OM-D to ape Damian's style, the photographer recommends the 70mm f/1.8, the 45mm f/1.8 and the 60mm f/2.8 macro. "I'm a big prime lens fan. Having been in the game for 30 years it was how I was brought up. Plus when I'm photographing people I'm always looking to compress perspective for a more flattering effect. In simple terms the longer focal length makes noses shorter.

A PASSION FOR PICTURES

"My passion for taking pictures is maintained by the fact that I love what I do and it's a privilege to be paid for it. As to where the inspiration comes from, I like clever words and lyrics; rock songs get the brain working."

Naturally, truly great photography is all about mastering light and Damian McGillicuddy has been called 'the Wizard of Light' in his time. Another nickname that has attached itself is 'The Big Dog' – a description that, bizarrely, followed an encounter with EastEnders actor Adam Woodyatt, aka Ian Beale,

Advertisement

“IT'S A WELL THOUGHT OUT & BEAUTIFULLY MADE PIECE OF KIT, COUPLED WITH SOME SUPERB OPTICS”

who attended one of Damian's talks. "I said to him 'listen mate, you may be a star of screen, stage and television' but this is my yard and I'm the biggest dog in it. All of a sudden people were emailing me with 'Dear Big Dog...' Let's be honest, photography is too politically correct these days. People are craving something a bit more rock and roll."

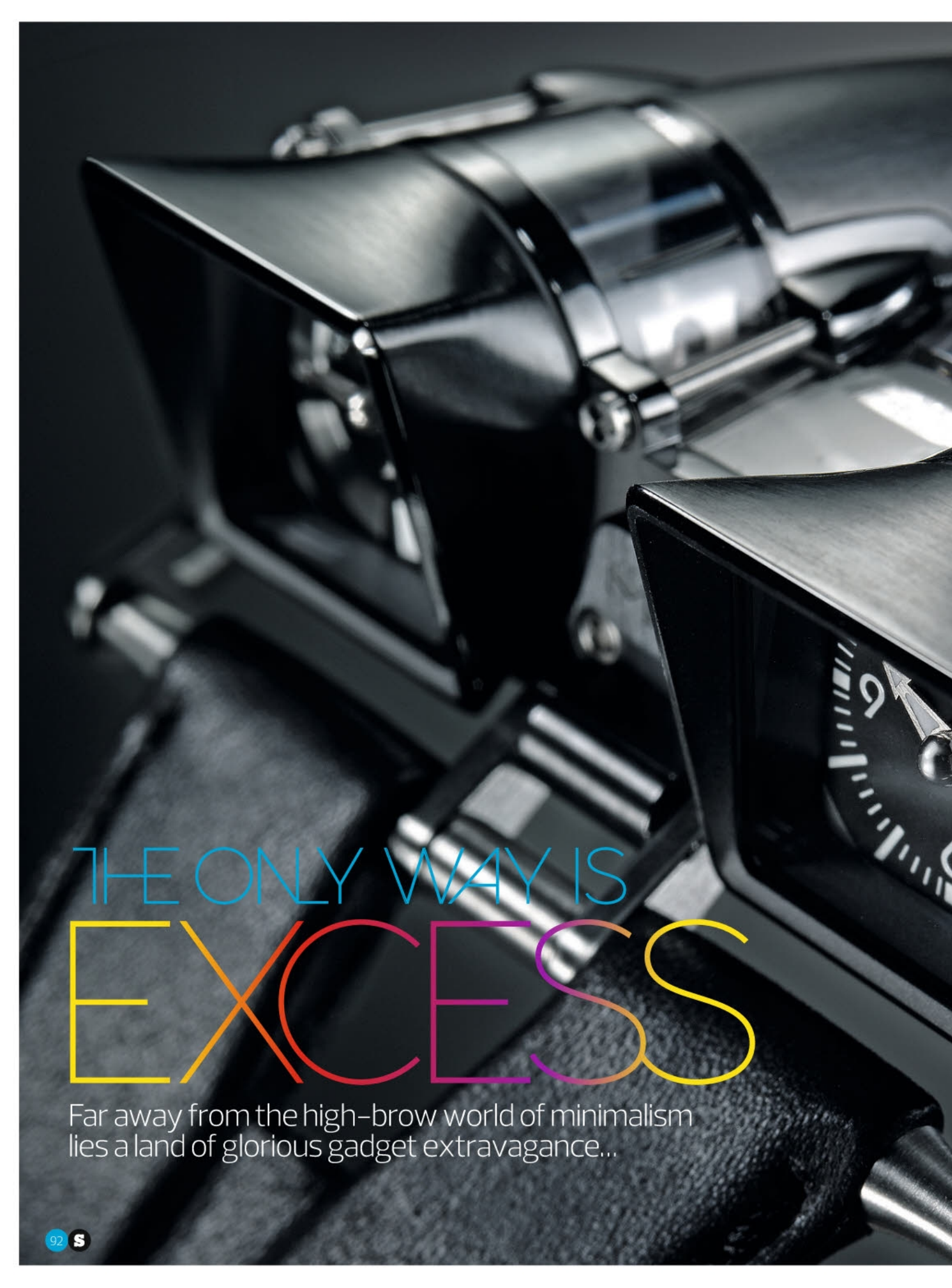
So there we have it: the Olympus OM-D – a classic that rocks.



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The HM No.4 is more than just a watch: it's a watch that thinks it's a jet fighter. It houses its main dials in two aeronautically styled titanium pods, while a transparent panel provides a view of some of its 300 components. And in true aeronautics industry style, those components are fitted only after the unit has undergone some 185 hours of machining and polishing work.

£70,000 / mbandf.com

INDESTRUCTIBLE BLACK OPS BUDDY THE MACALLAN FLASK

In an unlikely pairing, this Oakley-designed hip flask provides some excessive protection for your favourite trouser-housed tipple. Built to carry The Macallan whisky – although we imagine it will hold any liquid – the Flask has a food-grade steel liner wrapped in layers of carbon fibre, with a machined aluminium drinking funnel that screws into the neck for dribble-free supping.

£600 / themacallan.com

THE MACALLAN. THE FLASK.

TRACKS FROM THE TRACK IXOOST

Formula 1 enthusiasts often eulogise the sound an F1 car makes – in which case the iXoost should be music to their ears. Created in Modena, Italy, spiritual home of the supercar, these iThing docks are built using old Ferrari, Red Bull and Maserati exhausts. And as if owning a piece of F1 wasn't enough, each dock has six to 10 speakers and a 140W active subwoofer. And yes, it is compulsory to listen to 'The Chain' on them.

from €5000 / ixoost.it





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The iON Man is a nifty little action camera that allows you to document your every experience from sporting showcases to daily fun before wirelessly uploading, via your smart device, to Facebook or YouTube in an instant.

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ULTIMATE VINYL RESTING PLACE TECHDAS AIR FORCE ONE

There's no nerd like a vinyl nerd — and there's no record player like the Air Force One. So named for its hybrid air and liquid-polymer suspension system, it weighs 80kg, has two tonearms and comes with four power supplies. Oh, and it can flatten warped records by sucking them to its 30kg platter via a vacuum function. Not that the kind of vinyl nerd who'd own one would have any warped records.

US\$97,500 / avshowrooms.com



THE TREE OF LIGHT ELECTREE

Real trees are great, but their ancient design means they tend to lack modern ports and interfaces. So praise be for the Electree, an indoor charger designed to sit next to your window and convert sunlight into juice for any thirsty USB gadgets. It comes with 27 photovoltaic cell 'branches' whose shape you can tweak to your pleasing – or to better catch those rays. Just don't water it.

€350 / electree.fr

[Words: Julian Whitehorn Pictures: Pete Gardiner]



EXCESSIVE DESIGN UNIVERSE EDITION

Large Quasar Group

Not an experimental theatre troupe but a 4-billion-light-years-wide quasar cluster. Our Milky Way? 100k light years. Pathetic.

Ceres

This clodhopper of an asteroid is so big it's classed as a dwarf planet. At 580 miles across, it has a mass equal to one quarter of our asteroid belt.

NGC 1365

This 'nearby' galaxy (60 million light years away) harbours a black hole spinning at 670,000,000mph. Should sort the wine stain on your jeans.

Boötes Void

Not merely a footwear-free zone, but a puzzling region of emptiness in space that is a staggering 250 million light years across.



Charge and Listen Wirelessly

with a Bluetooth-enabled Qi Speaker Dock

MobiRock

Wireless Bluetooth® Speaker with NFC and Wireless Qi Charging



Wireless inductive charging pad and retractable cradle



Easy Bluetooth® pairing with One Touch NFC technology



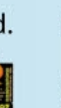
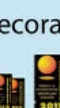
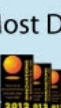
USB charging port to power most devices



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SINCE 1949



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Abarth 595 Competizione fuel cons mpg (l/100km): urban 33.2 (8.5) / extra-urban 52.3 (5.4) / combined 43.5 (6.5), CO₂ emissions: 155g/km. New Abarth 500 range starting from £14,200 OTR. Model shown: Abarth 595 Competizione (from £18,900 On The Road) with optional Record Grey Paint (£400).

Promotion available on new Abarth models registered before 31st March 2013. With Advance Payment Plan you have the option to return the vehicle and not pay the final payment, subject to the vehicle not having exceeded an agreed annual mileage (a charge of 6p per mile for exceeding 10,000 miles per annum in this example) and being in good condition. *Deposit amount is typically between 43% to 59% depending on term, model, and mileage. Terms and conditions apply. Finance subject to status. Guarantees may be required. Abarth Financial Services, PO BOX 4465, Slough SL1 0RW.

Stuff

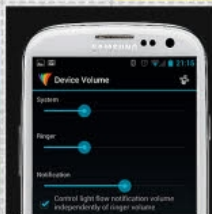
PROJECTS

MAKE. DO. UPGRADE.



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**BETA YOURSELF:
LANDSCAPE
PHOTOGRAPHY**

Top tips for getting great shots of the great outdoors



p105
**5 WAYS TO...
RE-AWESOMISE
YOUR GALAXY S3**

With a bit of TLC there's years left in this old blower



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**SUPER GEEK:
PINBALL
MACHINES**

The original arcade games machine is still going strong



p115
**IF NOTHING
ELSE, AT
LEAST...**

Three simple tech tweaks to make you 632% happier

BETA
YOURSELF

LANDSCAPE PHOTOGRAPHY



Peeved by your panoramas? Vexed by your vistas? Tim Parkin, editor of *On Landscape* magazine, takes us through his top tips for papping the view to perfection

NAIL THE BASICS

Keep it sharp. Modern cameras have so much detail that your body is the weakest link. Think like a sniper – brace, breathe out and press the shutter release slowly.

Use a tripod where possible. But if you must go handheld, you'll need a shutter speed of one over the focal length (ie 1/50 for a 50mm lens) to avoid camera shake blurring your images.

Employ a cable release or a two-second timer. If you don't, the action of pushing the shutter will move the camera and could quite easily blur your shots.



Use the foreground. A great way to show context is to include some feature in the foreground of your picture that connects or contrasts with your main subject.

Close down. Don't be afraid of an aperture setting of f/16 or even f/22. Your pics will have a huge depth of field, and with a bit of sharpening will look perfectly crisp.

Don't be a wide boy. Many beginners crave an ultra-wide lens to 'get it all in'. But photography is all about choosing what to exclude. Most iconic landscape images were shot on 24mm or even longer.



RULES

There are no rules. That's the first rule of landscape photography. However, some guidelines should help.

Break the rule of thirds. The reason for the 'thirds' rule is to remind us not to place things in the centre all the time. Place your subject or horizon at the edge, in the middle, anywhere – just keep it varied.

Ignore others. Image-sharing websites tend to idolise sunrise and sunset, but the great light lasts for an hour either side of these events. Start shooting earlier and stay out longer.



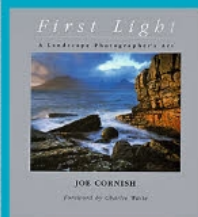
LEVEL UP WITH...



THE MAG ON LANDSCAPE

onlandscape.co.uk

A comprehensive online magazine created by the writer of this feature and dedicated to the art of landscape photography. You'll find articles, interviews, location guides, tutorials, videos and, most of all, a great variety of photographs of all styles. Various subscription packages are available, but much of the content is free.



THE BOOK FIRST LIGHT

£16 / amazon.co.uk

Joe Cornish is one of the world's most famous landscape photographers and this book has inspired a generation to take their cameras out and create their own work. Apart from this simply being a book full of very beautiful photographs, each image is accompanied by a short story about its making. Inspirational stuff.



EQUIPMENT

Don't sidestep filters. To minimise your use of Photoshop, buy a graduated filter set. Lee and Hi-Tech are names to trust here. A polarising filter will help reduce reflections and intensify colours. Vary your settings, too.

Dress right. Getting good photographs is about spending the time looking. That means warm and waterproof clothing is a must. Paramo makes excellent, eco-friendly gear.

Stay on the level. Although many cameras now have digital spirit levels, a simple add-on bubble level can do a great job.



EXERCISES

1 Cut a hole in a piece of black card to the shape of your camera's viewfinder and use this to look for your pictures. It helps hone compositional skills.

2 When you've found your shot, snap a wide view then zoom in a bit to the next composition and take another. Repeat until you've run out of zoom. Choose your favourite back home.

3 Studio photographers put diffusers over their lights – you can do the same by taking your photograph when a cloud is just starting to go over the sun, diffusing harsh shadows.



INSPIRATION

Learn from the pros. As with wine and music, your tastes develop as you are exposed to more variety. Look at pictures from some of the masters of landscape photography, such as Joe Cornish, Michael Kenna, David Ward and Elliot Porter.

Apply the 'tricks'. When you're looking at great pictures, ask yourself why the snapper placed or cropped things the way they did, then try something similar.

But is it art? Not all inspiration need come from photographers. Try artists such as Turner, Gainsborough and Van Gogh.



THE BOOK SHOP BEYOND WORDS

beyondwords.co.uk

In addition to Joe Cornish's book above, there is a world of landscape photography out there waiting for you. Thing is, a lot of it isn't available from your local WHSmith, Waterstones or Amazon. Have a look at *Beyond Words* or, better still, drop Neil McIlwraith a line about your interests and he's sure to help.

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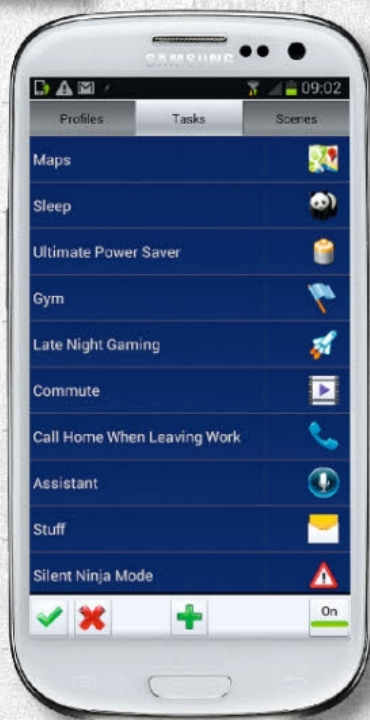


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5

WAYS TO...

RE-AWESOMISE YOUR GALAXY S III



So, the S4 just came out, scuffing up your poor old S III's best-in-class sheen. These tricks will unlock its full potential and restore its pride

1

Turn it into a pocket butler

Quite possibly the most powerful app ever made, Tasker will turn your S III into a pocket PA. Use it to configure actions such as shutting off data automatically as you sleep, texting your other half when you leave work, turning on GPS when you open Maps and much more. Siri looks like a sluggish mountain troll in comparison.

Tasker / £1.99
Google Play Store

2

Take 360° pics and videos

The BubbleScope case kit transforms your S III into a 360° photo and video recording beast. Attach the lens to its specially adapted case, load up the free app and create the ultimate in panoramas at the press of a button. You can show off the results by panning around on your phone or uploading to bubblepix.com.

BubbleScope / £50
bubblescope.com

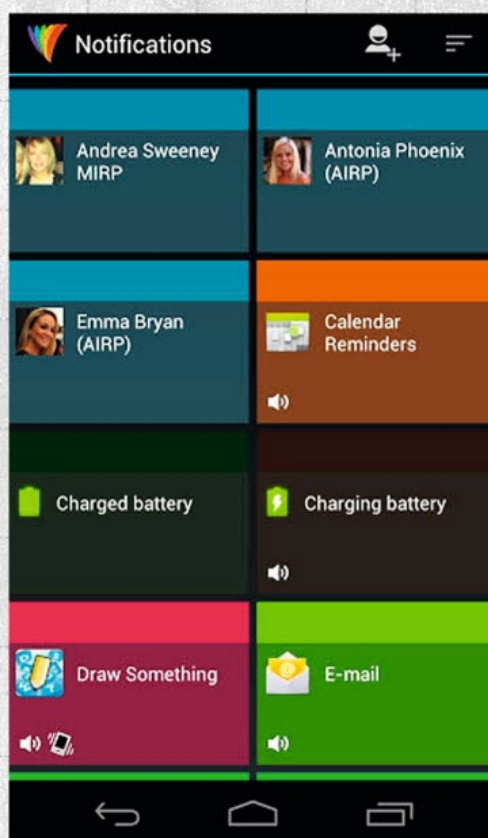


3

Make NFC actually useful

A handy app called Gredelin allows you to create custom actions when you scan NFC-enabled cards such as Oyster or some Barclays cards. Combine it with the London Oyster Balance or Barclays Mobile Banking apps (both £free) and you'll be able to check your balances and view recent journeys and transactions.

Gredelin / £free
Google Play Store



4

Power up your LED

Light Flow takes full advantage of your S III's multicolour front-facing LED by customising your notification colours. Want a red light for when you receive an email on Gmail? You got it. Blue for texts? Done. Yellow for Google Talk? Boom, sorted. Great for quick lazy glances while you're busy defusing bombs/ changing nappies.

Light Flow / £1.49
Google Play Store

5

Convert it into a games console

Samsung's OTG USB cable lets you use a PlayStation or Xbox 360 controller with an S III without having to root it. DualShocks work off the bat, while the 360 pad needs a few simple tweaks in the USB/BT Joystick Centre 6 app (£2.99). Couple it with a PlayStation or N64 emulator and you've got a console in your pocket.

Samsung OTG USB cable / £15
mobilefun.co.uk





HOW TO...

PLAY SNES CLASSICS ON YOUR WIN 8 LAPTOP

Good news: you can download your favourite '90s games for nothing. **Bad news:** doing so is illegal, even if you own the originals. But fear not, here's how you can play the classics without riling the copyright fuzz...



Player 1

Enjoy your old Nintendo games as you've never seen them before

Ingredients

- Your old SNES cartridges
- A Windows 8 PC or tablet
- The Snes8x emulator app (Efree / Windows Store)
- A Retrode 2 (£65 / retrode.com)
- Optional: an original SNES or Xbox 360 controller

01 Fire up the Windows Store on your PC or tablet and search for 'Snes8x'. You can download the app for free.

02 Plug your Retrode 2 into a USB port on your computer. Dock your choice of SNES cartridge into one of its two ports and also plug your SNES controller into it; it even works with multitap adaptors, should you fancy four-player *Super Bomberman*. If you have an Xbox 360 controller, hook it up to a USB port on the computer.

03 Go into Windows' classic desktop mode and tap on the folder icon then double-tap the Retrode folder on the left of the window. You should see the game's ROM file on the cart,

labelled [something].smc. At this point, you can either copy the ROM to your computer by dragging and dropping to a location of your choice, or leave it be. Leaving it means you'll never fall foul of the law.

04 In the Windows Metro interface, load up Snes8x with a tap. Go to 'Load ROM' and tap the '+' next to 'ROM directories'. Navigate to the Retrode folder and click 'OK'. The game should appear in the ROMs on the left.

05 Tap on the game ROM and play to your heart's content. If you want to save your game at any point during play, flick up from the bottom of the screen and tap the 'SaveState' icon. Time to revel in retro joy.

BONUS!

The Retrode also works on Mac, Linux distributions and even some Android devices with USB support. Find a suitable emulator and you're away. Not a SNES fan? You can use Sega Mega Drive cartridges and controllers on it (on Windows, try the Fusion emulator) or, via an adaptor, relive your childhood addiction to the N64, Game Boy or Master System. Or if you're really old, the Atari 2600.



Player 2

Download and play free homebrew 16-bit titles by bedroom developers

Ingredients

- Games ROMs from pdroms.de
- A Windows 8 PC or tablet
- The Snes8x app (Efree / Windows Store)
- An Xbox 360 controller

01 Do the same step 1 as left, plug in your Xbox controller and visit the pdroms.de (or others). Navigate to the Super Nintendo Entertainment System part of the site, download the games you fancy and unzip the files to a sensible folder: Documents / SNES ROMs makes sense.

02 Fire up Snes8x and add the folder containing your ROMs as in step 4 (left). Tap on your freshly downloaded homebrew games to play. The new stuff won't rival *Zelda*, but hey – it's free, and it's legal.



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HOW TO BUILD THE ULTIMATE TECH HOME



NETWORK!

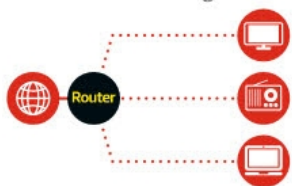
The gadgeteer's home is built on a bridgehead of robust networking, be it wired, wireless or a bit of both. Here's how to get your network in order, wherever you live



Scenario #1

You live in a sensibly sized, modern home

Modern houses are generally made of flour and crepe paper, so a good router will fill every nook and cranny with data-carrying waves. Still, for quality video streaming, it pays to get the latest and greatest, which is where (01) **Asus' RT-AC66U** (£200, asus.co.uk) comes in. It supports the new 802.11ac standard and hits speeds of up to 1.75Gbps – faster than a fast wired link – when used with suitable USB adaptors*. No wireless network is as robust as a wired one, though, so we'd still use the Asus' Ethernet ports, particularly for your media store and HD video streaming.



Scenario #2

You live in a castle made of solid granite

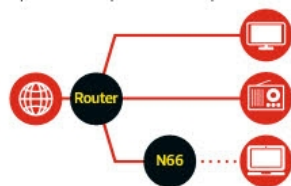
Is wireless powerless against your 1m-thick walls, or won't reach from your east to west battlements? Your best option is a Powerline setup, which plugs into power sockets at either end of the transaction, creating an Ethernet network betwixt router and gadget. You'll need a router – the RT-AC66U will do nicely, but you can use your existing one so long as it supports up to 1Gbps speeds. For ultimate flexibility, unite it with the (2) **Devolo dLAN 500 AV Wireless+** (£130, devolo.co.uk) kit, which will extend your Wi-Fi network and give you three Ethernet ports at the other end.



Scenario #3

You have an abode completely covered in Ethernet sockets

You lucky blighter. High-velocity home AV networking is yours if you invest in the RT-AC66U, which has four gigabit Ethernet ports waiting to be hooked up to your Ethernet-equipped TV, Sonos system and other networked goodies. But what if you want to create a wireless access point for, say, your iPad, in a part of your house that your swanky Wi-Fi won't reach? Try the (3) **Asus EA-N66** (£90, asus.co.uk), which will plug into your servants' quarters Ethernet socket and extend your network via 802.11n at speeds of up to 450Mbps.



* The AC66U plugs in to your existing modem; if you have a combined modem/router, set it to modem-only mode



HOW TO... TURBOCHARGE YOUR WI-FI

Poor Wi-Fi performance is as inevitable as death, taxes and people yelling "you ain't nuffin' ta me!" in *EastEnders* Christmas specials. But it's something that can be remedied easily...

1 Place your router sensibly

Think. Don't shroud your Wi-Fi source in lead. Even a closed door can attenuate the signal, so keep it high up and ensure the signal has an obvious escape route. Also, put it somewhere central, lest you lose half your signal to the world outside.

2 Big up your antenna(e)

Changing the antenna stalks on the router and receiving gadget can stabilise and improve Wi-Fi. The likes of TP-Link do upgrade antennae from about £5 each – money potentially well spent.

3 Repeat the signal

A Wi-Fi repeater extends your network by acting as a new starting point for transmission. Netgear's WN3000RP (£75, netgear.co.uk) is a big-name option, but smaller brands can be had from about £20.

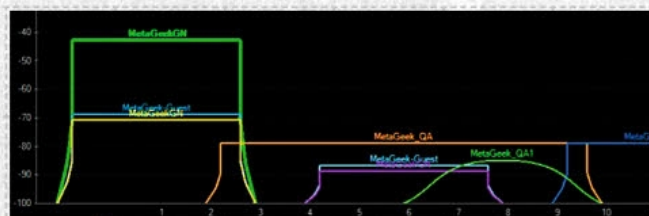
4 Go back to 2.4GHz... or change up to 5GHz

Modern 802.11n Wi-Fi operates on both the 2.4GHz and 5GHz frequencies. While 5GHz tends to be less congested, it's not so hot at navigating walls. A switch to 2.4GHz in the router settings (see below) could make a big difference to your range.

5 Change the channel

Most routers come set up using the same frequencies, and with population density now rivalling that of sardines in a crushed can, interference is an issue. Here's how to find the least congested signals and speed things up.

a) Download inSSIDer (free, metageek.net) to scan the airwaves and find out which channels local Wi-Fi networks are using. Click 'stop' mid-scan to see a graph of activity. If your network's in a congested spot, changing channel should help.
b) Hook up to your router via Ethernet and type its IP address (often <http://192.168.1.1>) into your browser. This should take you to a menu screen where you can change the router's settings. Type in your password (search online if you don't know it) and navigate to find the channel it's using; choose one the graph says is uncongested. Save changes: your router should reboot, and its performance should improve.



Scenario #1(2/3)5 Go multi-multi-room

If you're planning to have LAN parties or a high-def video streamer in every room of your mansion, you'll need a method of wiring more things together than a typical router can handle. Enter the **Netgear GS608 Gigabit Ethernet Switch** (£40, netgear.co.uk). When plugged into one of your router's Gigabit Ethernet ports, it'll handle the wired traffic going to and from between a further seven devices – enough for even the most palatial of properties.



**NEXT MONTH
PART 2: STORAGE**

STUDY ART

Add glamour to your home's network hub



The desk lamp Anglepoise Original Type 1227 Chrome

At 75-years-young, the Anglepoise is a pivotal, positionable design. It has now been refreshed with lashings of chrome to become your study's focus. **£195 / anglepoise.com**

The office chair Herman Miller Sayl

Yves Behar, the man behind the pleasing look of the Ouya console, designed this office chair based on the Golden Gate Bridge. Only without all of those thick steel cables. **£600 / hermanmiller.co.uk**



7 MILLION
DIVERSE
PLAYERS
OF ALL
AGES



400,000
VOLUNTEERS



300,000
COACHES



27,000
QUALIFIED
REFEREES
KEEP THE
GAME
RUNNING



SUPPORTING FOOTBALL SINCE 1863

The FA was formed in 1863 in London with the agreement of 13 laws. This year, The FA celebrates 150 years of organised football.

The FA is the not-for-profit, governing body of football in England. It invests over £100m each year to grow participation, promote diversity and regulate the sport for all to enjoy.

The FA runs The FA Cups, 24 England teams across men's, women's, youth and disability football, utilising the world-class Wembley Stadium and St. George's Park.

Football is the nation's favourite game. The FA aims to grow it further in 2013.

Get involved in football, and explore FA150 at TheFA.com and [#FA150](https://twitter.com/FA150)



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MAIL OF THE MONTH

Q SAFE AS HOUSES

I use a touchscreen phone and dock in my car. I get home, press a button and the car is secure. Press another button and the garage seals itself from intruders. So why is my most expensive possession – my house – guarded by a stone age lock and key? Surely there's a

better way to secure my most prized item than a metal stick?
Khalid Hasan

A Fair point, Khalid. While the good old lock and key is still king, there are more techy ways out there to secure your gaff. The web-connected Lockitron (US\$180, lockitron.com) enables you to open

your front door using your phone and can be fitted over a standard deadbolt. If you've got an iPhone it'll even use Bluetooth to unlock it as you approach. Yale also offers a Keyfree system (£500, yale.co.uk), which uses a PIN code or car-style fob to unlock the door. Since your house is soon to be so safe, have a Philips Original Radio to look after.

Speak your brains at us and you could win a **Philips Original Radio** worth £170



Q BLUEPRINT BLUES

I'm a builder and if gadgets can make any profession easier, it's mine. Building sites have lots of walls but rarely do they have flat, dry surfaces on which to lay plans. I receive blueprints as PDF files attached to emails and carry my iPhone and HP laptop with me – is there such a thing as a mini blueprint projector?

A You're in luck, PG. Pico projectors aren't as popular as they were five years ago but they are a lot better. Optoma's PK320 (£350, store.apple.com) fires out a picture of up to 150in and has a 2GB memory that supports PDF files, so you can load it up before you head to the site and leave your cumbersome laptop at home.

Q BAND PRACTICE

I love making music on my iPad with Garageband so I'm looking for a speaker that is relatively portable but sounds good, with an auxiliary input for my Korg Kaoss Pad 3. Ideally I'd like something I could put in a backpack with my iPad and take with me anywhere, and change from £200 would be perfect.

Andrew Charlan

A If you can hold on for a month or two, Charlers, we've got a test of portable Bluetooth speakers coming up. Of the ones we've sampled so far Logitech's UE Mobile Boombox (£80, logitech.com) is best for carting about, while the Philips Fidelio P8 (£200, philips.co.uk) is bigger but also sounds better.

Q SIZE MATTERS

Having moved my Xbox to a new room I realised that the only space in which I could set up the TV was a smallish hole in the wall. The largest TV that will fit is 37in. What is the best 1080p smart LED TV with Freeview HD of that size for less than £450?

Angus Holmes

A The 37-incher seems to be a dying breed these days. AngHo, but Samsung's full HD, LED-lit UE37ES5500 (£400, currys.co.uk) lives on online. It's slim, smart and should fill that 37in hole in your wall very nicely.

Q INKSPARATION

I've recently moved into a new house and can't fathom a way to set up a wireless printer. In the old house I used two Powerline adapters and Ethernet but the lack of adjacent wall sockets and the non-negotiable position of the router make this impossible without a hazardous swarm of cables. Can Stuff recommend an adapter for my HP so I can print without wires?

Andrew Downie

A You need a wireless print server. Downers.D-Link's snappily titled DPR-1040 (£50, dlink.com) should do the job. You plug it into your printer using USB then hook it up to your Wi-Fi. After that, any computer that connects to your Wi-Fi network can use it to print, meaning the printer can be plugged in anywhere you want. Go on, stick it in the bathroom.

Q SNAP DECISION

I have a DSLR but when out and about I want to use something more suited for general photography. I have a budget of £200 and was considering a bridge camera, specifically the Fujifilm Finepix S4300 or S4400. Can you guys throw any more into the mix?

Martin Ridgers

A We haven't tested the S4300 or S4400, but our recent bridge camera round-up found that you need to spend at least £350 to get one to rival the best compacts. With £200 you're likely to get better value and better results from a compact, such as the Sony HX10V (under £200), which has a bridge-cam-rivalling zoom, excellent low-light performance and superb video skills.



SUPER
GEEK

PINBALL MACHINES

UK flipper king and editor of *Pinball News* Martin Ayub explains the timeless allure of the silver ball

OK, I'll admit it – nobody actually needs a pinball machine. But, boy, is it fun to own one. And having fun is what pinball is all about. Since the 1930s, people entranced by the flashing neon and point-scoring pings have dropped coins in slots and tried to flip, nudge and shoot their way to that high score.

While the tech and controls have changed in the past 80 years, the game is essentially the same – a fight against gravity to stop a little silver ball from escaping the miniature carnival beneath the glass.

Way before modern classics such as 'The Avengers' there was a pioneering machine called 'Triple Action', made by Genco in 1948. This was the first machine to have two player-controlled flippers at the bottom of the playfield, which let you send the ball back up the incline and turn what had largely been a game of chance into one of skill. Features have come and gone since, but the flippers have remained where designer Steve Kordek put them 65 years ago.

It is this simplicity that is the key to pinball's appeal. There are

usually just three ways to lose the ball. The main one is directly between the flippers, but on the outer edges are channels called 'outlanes' and, within those, 'inlanes' that channel the ball back to the flippers. Finding ways to avoid those outlanes is the key to a long, rewarding game.

Pinball designers have tried relentlessly to find ways to differentiate their tables from this standard. Wider, smaller, bigger and truly massive games – Atari's Hercules in 1979 used a pool cue ball – have emerged, as have circular and sit-down

hexagonal ones. But in the end the classic design usually wins out. My gateway drug was playing 'Jungle Lord' at college in 1981. From the first ball launch, my video game days were over.

In a world of simulations and emulations, pinball machines are a welcome return to physical gaming – feeling the roll of the ball, gently nudging as it rebounds off the rubber rings, controlling the seemingly uncontrollable to make it go where you want. In the words of pinball pioneer Harry Williams, "the ball is wild!". And taming it is a glorious addiction.

JARGON
BUSTER

■ SHOOTER ROD

The sprung metal rod that you pull back to release the ball into the playing field. The further back you pull it, the faster the ball is launched.

■ BACKGLASS

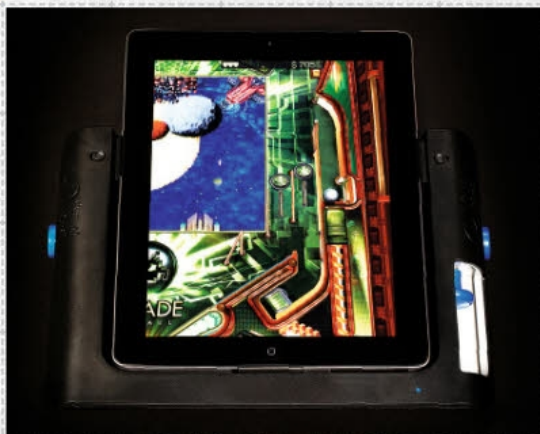
The illuminated piece of glass facing the player and the machine's main artistic statement. Usually houses the player-score display. Backglass styles tend to reflect the table's era.

■ SPECIAL

An award the machine gives you for playing particularly well. Usually a free game but can be adjusted to give big points or nothing at all.

■ TILT

Learning to bump or nudge the machine to influence the movement of the ball is an essential skill in pinball, but exerting too much force will result in the machine recognising a 'tilt' and shutting down.



DUO PINBALL

A cheap but satisfying reminder of what it feels like to play real pinball, this accessory augments your iPad with a spring-loaded plunger and two authentic-feeling flipper buttons. Build quality is basic and it only works with the Pinball HD Collection app, but its five free tables are enough to get you hooked on the retro joy of 'ding ding' arcade bleeps and the chase for high scores. The use of a Bluetooth connection means it works with all generations of iPad too, although iPad Mini owners will have to wait for a miniaturised version.

£25 / amazon.co.uk



WIZARD OF OZ

This first game from new US company Jersey Jack Pinball packs the playfield with Oz-themed features. Dorothy's house is spun around in the tornado and lands on the wicked witch, winged monkeys fly your ball up to the witch's castle and you get guidance to help you on your journey through the haunted forest from a crystal ball. Of course. There are five flippers and two mini-playfields, and the whole shebang is topped off with a 26in LCD monitor displaying your progress alongside custom animations and clips from the movie.

£5500 / pinballheaven.co.uk

GATEWAY
DRUGFUTURE
CLASSIC



THE AVENGERS

With its lineage stretching back to the '30s, Stern Pinball is a classic pinball name – and the company continues to make iconic superhero games such as this one. The Avengers brings the six Marvel characters into the pinball arena to battle the evil Loki for control of Earth. Dominating the playfield is The Hulk, who throws the ball around and tears up one of the ramps. You can spin the Tesseract to start special scoring features or collect all of The Avengers to reach 'wizard' mode. Either way, you'll have a blast playing one of the all-time great pinball playfields.

£4195 / pinballheaven.co.uk

HOW TO... INVEST IN PINBALL



■ CONSULT THE EXPERTS

The best way to avoid paying over the odds for a machine is to get help from fellow collectors. Go to events such as the UK Pinball Party (ukpinballparty.com), which has over 100 machines set up and ready to play, and tap people's knowledge between games. Another great forum for tips is the UK Pinball Group (bit.ly/ukpinball) forum.



■ KNOW YOUR MACHINE CLASSES

Pinball machines are classified according to the system used to show scores. There are electromechanical ones (which use reels), solid-state (seven-segment digits), alphanumeric (can show messages), dot matrix (allows single-colour graphics) and now LCD. As a rule, the more advanced the display technology, the pricier the table.



■ PREPARE FOR DAMAGE

Even if you keep your machine nice and dry, you can't prevent that heavy ball eventually causing damage. If you're handy with a soldering iron, parts are available online from trusted places such as Pinball Mania (pinballmania.co.uk) and Pinball Palace (pinballpalace.co.uk). If not, buy a machine with a warranty and get a technician to service it for you.



YOU CAN'T TRUST EVERYONE SELLING CARS ON THE INTERNET



You don't necessarily know who's behind selling a car when you buy online. You also need to be assured that what they say they are selling and what they are selling are the same thing. Buying from **Trusted Dealers** is the safest and most reliable way to buy a used car online. Owned by its members with hundreds of **franchised dealerships across the UK**, we can offer standards that other classified websites can't guarantee and that's why **What Car?** endorse our Ten Points of Difference.



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5-MINUTE HACKS

IF NOTHING ELSE, AT LEAST...

...FIX YOUR TV'S GAMING PICTURE

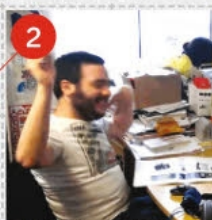
Fiddling with TV settings isn't top of your priorities when you've just excitedly fed your console a new game. But a few minor tweaks can transform a gaudy picture into a natural beauty.

- **Most TVs have a 'gaming' picture mode.** Find and select that in your TV's settings. Make sure this turns off all the motion and processing modes such as 'vivid colour', which can make games look psychedelic.
- **Now enlist the help of a THX calibrator**, which you'll find on many Blu-rays or DVDs from the last few years. Use this to fine-tune the gaming mode.
- **Lastly, load up a title** that lets you adjust brightness and contrast (recent examples are *Tomb Raider* and *Crysis 3*). Use this as your default setting for games and adjust as necessary.

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Apps such as Vine are perfect for pre-meditated shorts, but what if you need to unearth viral gold in videos you've shot already? Turn your old clips into world-sensation GIFs:

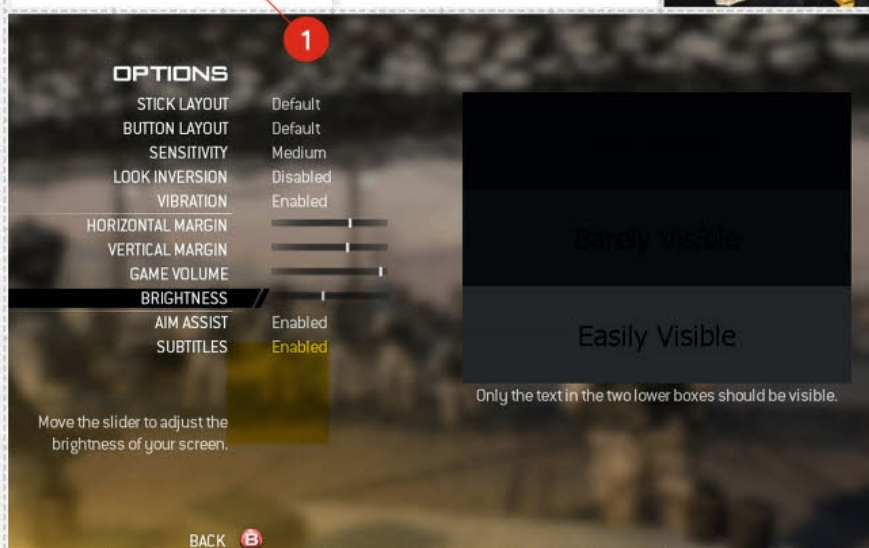
- **Firstly, if short on inspiration**, check out Tumblr pages such as Patakk (patakk.tumblr.com).
- **Mac users should download GIF Brewery** (£3, App Store); for Windows, get GIF Animator (Efree, gif-animator.com). An alternative to both is the web-based Imgflip (imgflip.com).
- **Import your video and get editing.** Both programs have effects and caption editors, but keep the frame rate down to 12fps (or 15fps if speech is used) so the file isn't bigger than 1MB.
- **Export your file and share your GIF** via sites such as Imgur.com, Reddit.com and on Twitter.



...MIX A PIMM'S ALTERNATIVE

You could greet the sunshine with another jug of Pimm's, or you could surprise your friends' tastebuds with this quick and refreshing summer alternative from mixologist Amit Sood (barconsultancy.com).

- **Ingredients**
500ml rosé wine (e.g. Mateus)
45ml elderflower cordial
8 slices of lemon
4 large chopped strawberries
16–20 raspberries
200ml cold soda water
- **Half-fill a 1l pitcher** with ice cubes. Pour in the wine followed by the elderflower cordial.
- **Throw in the fruit** and give it a gentle stir. You can also add mint for a cool aftertaste.
- **Finish by adding the soda water.** Decant into glasses, then locate a deckchair.



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Clockwise from left: Warlock Backpack, Synchro Belt, The Corporal, Snapper Trucker Hat, The Streetcat, The October.

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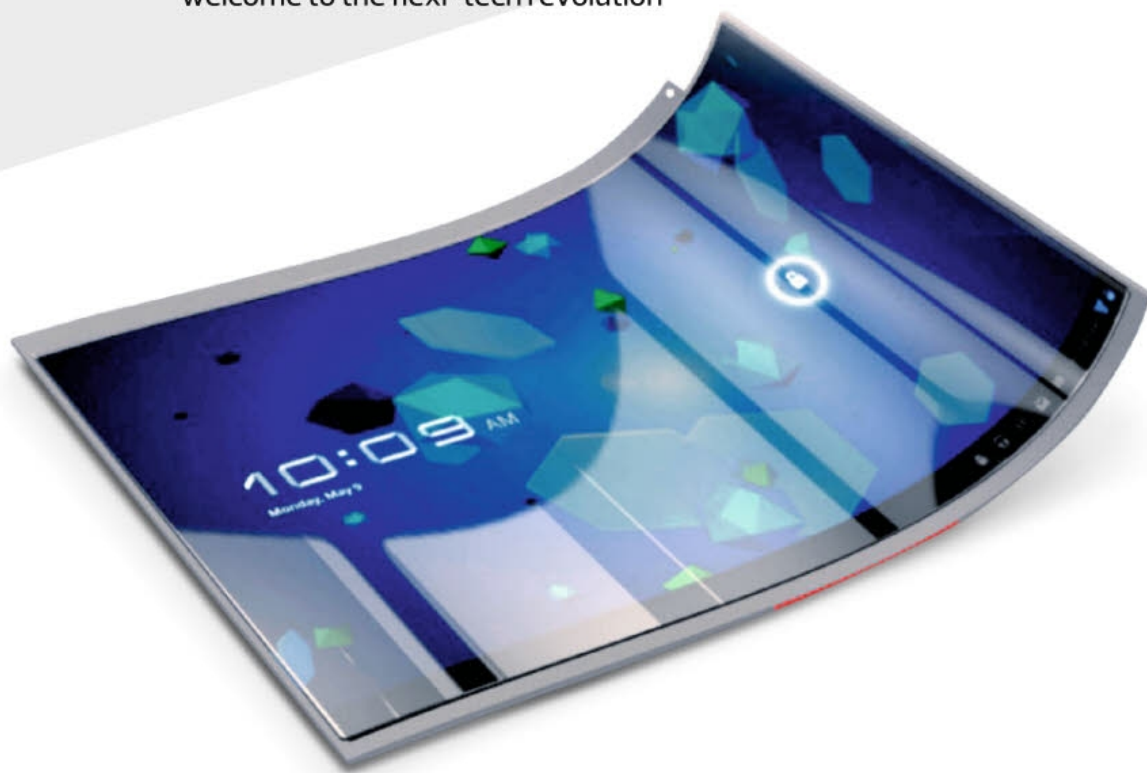
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THE FUTURE IS BENT

Gadgets can be stubbornly rigid, but the days of cracked screens and chunky cases will soon be over: welcome to the flexi-tech revolution



If you're reading this on an iPad or Xperia Tablet Z, congratulations – you're holding one of sci-fi's most enduring icons. From Arthur C Clarke's 'Newspad' to the electronic clipboards in *Star Trek*, tablets are the brainchild of yesterday's prescient geeks. But

their ideas didn't stop at rigid glowing rectangles. The ultimate aim has always been to have tablets that fold and flex like paper – witness *Minority Report*'s electronic newspapers. Turns out that's not far away either. While we've been stubbing our fingers on

glass, scientists have been cooking up the tech needed to make 'flex-to-zoom' a reality, with the billions now being pumped into graphene research a major catalyst. But why would you need a fold-up iPad? And how long before we're reading paper-thin digital rags on the train?



Gadgets are versatile little critters these days, but one thing most of them steadfastly refuse to do is flex. If you've ever suffered the pain of a fractured tablet or cringed at the sight of a cracked smartphone screen, you'll know that this can be a bit irksome. The reason for their rigidity is simple: the guts of today's gadgets – screens, processors and various other electronics – are made using materials that don't bend. At all. This is why they often have a sandwich-type structure, with front covers, back covers and rigid components between the two.

Convincing them to bend isn't easy. As pioneering materials scientist Professor John Rogers says, "Bendable systems require totally new materials and manufacturing techniques." These materials and techniques are, as we're about to reveal, at a more advanced stage than you'd think. But while this makes flexi-tech a question of 'when' rather than 'if', we should first rewind to that underlying poser: why make them bendy in the first place?

Warped schemes

The most obvious reason is sheer ruggedness. In January, Samsung's Mobile Display Lab in San Jose introduced its flexible Youm display at Las Vegas' annual CES techfest. While Senior VP of Engineering Brian Berkeley's flexing of a hi-res OLED was greeted with the mandatory whoops, more interesting was his proclamation that "the plastic display won't break, even if it's dropped". Great news for the cack-handed, then, but there's a little more to bendy gadgets than preserving insurance premiums.

For versatile tech such as tablets and smartphones, bendability potentially brings a new world of super-intuitive interfaces (see panel overleaf). Nokia's Principal Designer of Advanced Design Tapani Jokinen, who has overseen its Kinetic bendy phone prototype, says "bending and twisting these devices could make interaction much more natural and intuitive". In other words, rather than 'pinch-to-zoom', think 'squeeze-to-answer' or 'twist-to

scroll'. Such uses go well beyond gadgets too: Massachusetts-based company MC10, co-founded by Rogers and inspired by his stretchable circuits breakthrough in 2008, is starting to roll out virtually invisible, plaster-like sensors that bend and contort with your skin as they monitor your health.

The ink-readables

One of the biggest beneficiaries of flexible tech will undoubtedly be tablets. So revolutionary are next-gen materials and manufacturing, they're likely to change our concept of what a tablet actually is. *Stuff* spent time picking the brains of the scientists and companies involved, and can see the flexible tablet being unrolled in three stages (see panel top-right).

The first stage, evolving over the next year, will bring flexible 'second screen' devices that offload processing to more powerful rigid devices. The tech used in those is already here: "We've shipped E Ink displays that flex slightly," explains Sriram Peruvemba,

FLEXY TIMES

Milestones along the road to technology's supple future...



1968

The first flexible TFTs, bendy sheets of electronics designed to power pixels from beneath, herald a future of flexible screens.

2004

A pair of Russian scientists manage to accidentally isolate graphene, a 2D super-material, by playing around with sticky tape.

2005

Philips spin-off Polymer Vision shows off the Readius (right), a prototype rollable E Ink reader. The company went bankrupt in 2009.

marketing chief at E Ink, the company behind the displays for Amazon's Kindle e-readers. "There are about 30 million flexible E Ink displays in the field today, and in the past we've even created displays that will roll up into a tube just a few millimetres across." These use the same tech as the Kindle screen, relying on thin-film transistors (TFTs) – fancy semiconductor devices that control electronic signals – that are bonded to plastic sheets in order to power their black-or-white pixels.

Cambridge-based company Plastic Logic has already developed an entirely bendable reading device using similar tech, with essential, unbendable components stored away in a narrow, stiff spine. And if we're lucky, we might even get colour displays in the coming years. "E Ink is inherently black and white," explains Plastic Logic's Rachel Lichten. "To get colour, you have to align a filter to within 5 nanometres of each pixel on the flexible backplane – not easy, but we can do it."

Going for fold

A fine start, but squeezing electronics into a small, solid 'handle' does limit the scale of on-board digital trickery. To pack real grunt, we'll require flexible components. "The miniaturising trend in electronics at the moment is well aligned with the kinds of designs you'd

THREE STAGES OF THE FLEXI-TAB



1. Flexible E Ink screens

Due 2014 (black and white), 2016 (colour)

Concept Plastic Logic's planned flexible display for use in an e-reader, making for an ideal companion on longer journeys and holidays. "The spine of the book is stiff – that's where the electronics could go," says Lichten. "And then you have two very thin, flexible pages. In the future, devices like this could have gesture control built in, which would let you flick between pages."

The tech Flexible E Ink screen, camera or infrared light and spine-based electronics.



2. Folding one-screen tablets

Due 2016–17

Concept The Sony Tablet P2 or Apple MacBook Touch. A tab with a flexible OLED that folds to protect the screen and fit in your inside pocket. "It's realistic to expect we'll have folding tablets based on flexible OLEDs by 2016," says MarketsAndMarkets analyst Abhigyan Sengupta. "They'll be more of a multi-purpose handheld device. We expect phones to penetrate the market first, so look out for the Samsung Galaxy S5."

The tech Flexible OLED display and fabric hinge, with semi-flexible electronics.



3. Roll-up phablets

Due 2020

Concept Samsung Youm. The holy grail: a completely flexible, rollable tablet – an iPad to shove in your pocket. Samsung isn't talking much about it, telling us: "It's too early to come up with a new product with a flexible display, but we'll announce our plan when the technology is stable enough to commercialise." So a real-life Youm is years away, but its curved-screen prototype shows us the ball is rolling.

The tech Rollable OLED screen, flexible electronics and wireless power.

"IN THE FUTURE, YOU WON'T JUST DOWNLOAD AN APP BUT ALSO A DEVICE'S SHAPE"

Sriram Subramanian, University of Bristol

want for flexible technologies," explains Rogers. "Reduce the size of most components, and you make them smaller, thinner and intrinsically more bendable." But while components such as wiring and transistors are already flexible, we're in for a slightly longer wait before processors can bend. Until then, inflexible parts will be lumped together in islands, connected by wiring, which will allow specific areas of the device to bend.

Which brings us to the second stage of flexible devices: a new generation of foldable, if not yet rollable, tablets. You'll remember the ill-fated Sony Tablet P, which opened along a hinge to reveal two screens. Now imagine a slimmer

version with a flexible, continuous screen, perhaps with more hinges to let it fold many times. "It could bend into plenty of other shapes: to play games with, or to type on," explains Sriram Subramanian from Bristol University's Interaction and Graphics department. A stepping stone, sure, but an important one – and progress points to it being in your hands by 2016.

Running circuits

But what about that malleable holy grail: a rollable tablet whose every component bends to your will? That will require further advances. The processors that currently drive your tablet are built on hard silicon wafers, so scientists are working out how to create processors from different materials. Or, more likely, remove the number-crunching circuits from their wafer-bound existence and place them on to rubbery, stretchable bases.

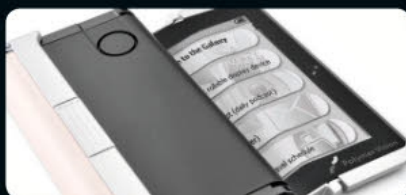
"Because of their thin dimensions, once they're off that wafer, they're inherently flexible," explains Rogers.

The good news is that it's possible; the bad news is that it's likely to be 2020 before they're fast enough to power a respectable device. It's a similar tale for the rate of progress with memory, too. Batteries? They're an even bigger problem because their capacity is dictated by volume: make them thin enough to be flexible and they barely hold any juice.

Instead, researchers believe devices will need more than one power source. "For that reason, we're looking at wireless power," concludes Rogers. That amounts to pumping energy into devices through the air via radio waves, relying on the science of magnets to harness power in the device.

Samsung's curveball

Massive challenges are afoot, then, but experts agree that over the next seven years all the pieces of the bendy puzzle will fall into place. The only thing missing is a full-colour, high-resolution screen. OLED or LCD screens provide us with lush, rich graphics, but unlike ●



2008

Nokia's bendy Morph concept phone is shown at the New York Museum of Modern Art, primarily to show the potential of nanotechnology.

2008

University of Illinois professor John Rogers makes the first bendy silicon and plastic circuits, which can stretch by up to 15%.

2012

The Wexler.Flex One becomes the first flexible e-reader to go on sale. It's thin, just-about-bendable and has much room for improvement.



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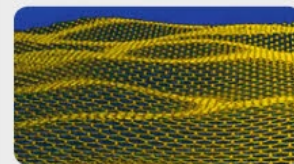
Companies such as Plastic Logic and E Ink are working on that, but Samsung may have beaten them. "Our team was able to make a high-resolution display on extremely thin plastic instead of glass," explained Berkeley at CES as he showed off Samsung's flexible OLED, Youm. In fact, he went further, presenting a concept video in which a smug tech hipster is bested by a rival upon seeing him fold his future-world Samsung tablet into a pocketable smartphone. Youm is beyond today's tech, but promises displays that can fold, bend and wrap around devices to provide extra display capacity on the sides of phones and tablets (say, to slyly read a text message during a meeting).

The flexible future

Flexi-tech's exciting possibilities lie in a revolutionary material called graphene (see right). Super strong and incredibly

thin, graphene will allow engineers to make incredibly light, flexible components that are practically indestructible — and perfect for making bendy new gadgets. Thanks to the European Commission's injection of €1 billion towards the development of the super-material in January 2013, graphene is finally ready to take gadgetry's centre stage.

Even more exciting is the idea of tablets that aren't only flexible, but can change shape entirely. "In the future, when you download software you won't just download an app," says Subramanian, "you'll also download an appropriate shape for the device." Effectively you should only ever need one gadget: in the palm of your hand will be something so versatile that it's always the right tool for the job. Putting a date on when such technologies might arrive, though, is something even the Zoltar machine in *Big* couldn't accurately manage. ●



GRAPHENE

A mono-layered future-tech marvel explained

What is this 'graphene'?

It's made up of sheets of carbon atoms, only one atom thick, arranged into a hexagonal pattern. Scientists call it a wonder material because it's 100 times stronger than steel but so thin that 1g of it could cover a football pitch.

So it's perfect for flexible tech?

Yep. It's totally transparent and can conduct electricity too, so a touchscreen could be made by printing it on to plastic. The American Chemical Society says it could lead to phones as thin as paper, yet nearly unbreakable.

What's taking it so long?

Patience. Graphene was only isolated as a single layer for the first time in 2004 by Andre Geim and Konstantin Novoselov at the University of Manchester, who won a Nobel prize for their efforts. Mass producing it is still complex, though, which means right now it's too expensive to use in gadgets.

What's the ETA then?

Within the next decade. Billions are being spent on development: the EU has given €1.35 billion to graphene research, while Cambridge University recently announced a £25 million research centre dedicated to the stuff.

Twist-to-turn



FLEXI-TAB INSTRUCTION MANUAL

Sriram Subramanian tells *Stuff* how we can expect to interact with a bendy tablet...

"When you're reading an ebook you'll be able to tweak the corner of a page, like you would dog-ear the corner of a piece of paper, to move on. A similar tweak might bookmark a webpage, too."

Bend-to-zoom



"Imagine holding a device on two sides or corners and then flexing it in or out — like the way you might bend a credit card. That movement will allow you to zoom in and out of a document."

One size fits all



"If the whole device is flexible, you'll be able to change its shape to do things better. You might fold it so that it's the shape of a game controller, or so it curves to fit your face when you're making a call."

Shape-shifting



"Eventually we'll have tablets that can change shape and represent 3D structures. You might look at Google Maps and it'll show you how hilly the terrain is — so you can choose to avoid hills!"



Nokia's bizarre Morph concept helped to get the world excited about the potential for flexible displays.

Baby steps

Before we get too carried away with bendy hype, there are some perfectly reasonable qualifications to consider: "Touchscreens were around since the '60s, tablets have been around since the '80s, but it's only recently they've taken off," says Subramanian. "Any revolutionary idea needs evolutionary steps: throw people something crazy and it's never going to take off." So expect to see a gradual rise in flexible tech complexity over time. At first you'll just tweak the corner of an ebook, but as products develop the commands you give will get more complex.

There are other things to consider, too: give a man something flexible and it's only a matter of time before he bends it too far. "Fortunately, humans intuitively have a sense of what mechanical forces are safe," laughs Subramanian. "But we're still thinking about how feedback can let users know they shouldn't bend a device

any further." Our prediction? Instead of ringtones, we'll be downloading custom cries of anguish for our smartphones to emit when we're overstretching them.

Stuff says

The future of tech is most certainly bent, and we're already seeing the first signs of this pliability. Bendable screens are now a reality, but the inflexibility of gadget innards means those from the likes of Plastic Logic will initially act as secondary displays in the form of e-readers and watches. These will be quickly followed by folding, book-style tablets, which will use the OLED tech shown recently by Samsung Youm. But it's the European Commission-powered acceleration of graphene that holds the key to true roll-up tablets. If all goes well, by the end of the decade we can expect it to produce wafer-thin, colour-display tablets that you'll be able to pocket — if you can bring yourself to stop using them, that is. ●

MOVIES GO MALLEABLE

Hollywood's warped ideas for future tech



Transparent displays

Red Planet (2000)

A flexible, transparent tablet that could be unrolled and held aloft to augment reality. The crew of Mars-1 used it to overlay data on to their view of the planet, helping them navigate and learn about their surroundings.

Wearable computers

Fantastic Four (2005)

Mr Fantastic (Reed Richards to his friends) is capable of stretching his body into any shape. Fortunately, his uniform — which contains processing and telemetry systems woven into it at the molecular level — is able to stretch with him.



Memory cloth

Batman Begins (2005)

A fabric that stiffens to a pre-defined shape when an electric current passes through it. The Dark Knight used it to fashion a cape, as you do, allowing him to glide through the air with ease, and look camp on the deck.

Smart armour

Iron Man 2 (2010)

Designed to fold up into a suitcase for transportation, this suit lacked the heavy robotics of Iron Man's other kit but made up for it agility-wise. Armoured and made of overlapping titanium strips, it weighed just 13kg.

OTHER FLEXIBLE FRIENDS

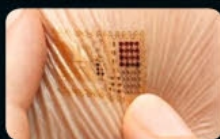
It's not just tablets that are being primed for pliability — behold their fellow tech contortionists...

CST-01
E Ink Watch



Due Sept 2013
centralstandard
timing.com
One of Kickstarter's most recent stars, this 0.8mm-thick flexible wrist watch houses an E Ink display in a single piece of stainless steel. It weighs just 12g, charges in 10 minutes, and lasts a month on a full battery.

MC10
skin sensors



Due tba
mc10inc.com
Bendy, stretchy circuits are what wearable tech has been waiting for, and MC10 is using them to make health-monitoring plasters. These include a hydration sensor that tells you via an app when it's time to pay a visit to the water cooler.

BMW
Gina



Due n/a (concept only)
bmwgroup.com
It's not only portable tech that's getting flexible. BMW's concept shows the possibility of cars with stretchy skin that changes according to conditions or the driver's preferences. A must for Bond, if he wasn't such a damn realist these days.



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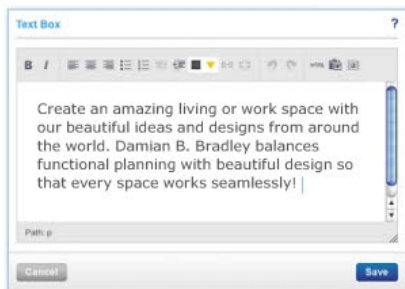
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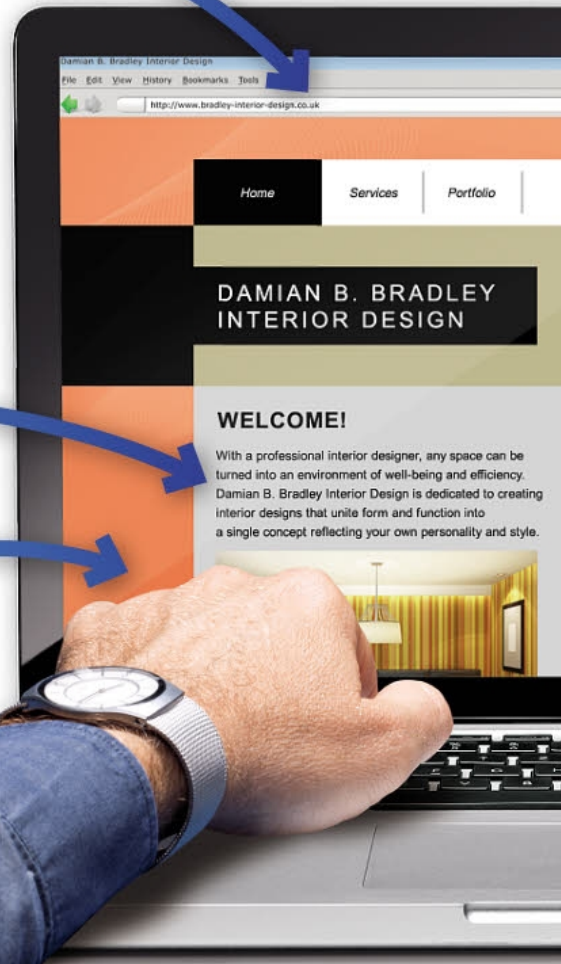
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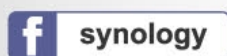
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HOT
BUY
UPDATE

1

**HTC One**

HTC's days of being overshadowed by Samsung and Sony are over: the One is better than the best offered by either of its Android rivals. Of course we're writing this before we've tested the Galaxy S4 – by the time you read this, Sammy's new flagship may well have taken the top spot. If it has, it'll be some phone – because the One is a masterclass in smartphone craft, from its impossibly clear 1080p screen to its strokable aluminium body, clever Sense 5 skin and UltraPixel camera.

STUFF SAYS

Super-stylish, ultra-smart and a pleasure to use, the HTC One is a masterclass in smartphone design

£480 ★★★★★

2

**Sony Xperia Z**

You've got to feel for the Xperia Z – just two months at the top and it's been demoted to second place. Still, while it loses the ergonomic and screen-res fights with the HTC, Sony's 5in-screened flagship remains a gorgeously monolithic slab of a smartphone.

£450

★★★★★

3

**Samsung Galaxy S III**

The S III's reign at the top of this list is over, but its 1.4GHz quad-core processor and Jelly Bean smarts mean it's still a fantastic phone. We also prefer its camera to the Xperia Z's, and with the S4 due to land in our laps any day now, the S III's price has come a-tumblin'.

£315

★★★★★

4

**Google Nexus 4**

Our champion 'budget smartphone' is finally in stock on Google Play. The Nexus 4 represents astonishing value: it runs vanilla Jelly Bean, packs a lovely 320ppi screen and is getting more accessories than any other Android smartphone bar the Galaxy S III.

£240

★★★★★

**BEST FOR
POWER AND
PRICE TAG**

5

**Apple iPhone 5**

It's got the best app store, the subtlest design and continues to offer the smoothest smartphone experience out there, but iOS is looking increasingly dated next to Android and the technical superiority of flagship rivals means the iPhone 5 is no longer best-in-class.

£505

★★★★★

**BEST FOR
UNPARALLELED
APP CHOICE**

6

**Samsung Galaxy Note II**

Its 5.5in 720p screen might be too much for most of us to get to grips with but the Note II's supreme power, handy S Pen stylus and features such as Popup Browser and Multiscreen will be exactly what some gadgeteers want. The time for mainstream phablets is here.

£435

★★★★★

**BEST FOR
BIG-HANDED
CREATIVES**

7

**Blackberry Z10**

Solid, with a detailed 4.2in, 1280x768 screen and an 8MP cam, but the Z10's real draw is the new BB10 OS. Its gesture-heavy navigation takes time to master but works well, the smart keyboard is one of the best we've used and BB Hub is a one-stop message shop.

£450

★★★★☆

8

**Nokia Lumia 920**

It's a photo finish, but Nokia's flagship edges out HTC's 8X as our favourite Windows Phone. The two share the same dual-core processor, but the 920's superior 4.5in screen and battery give it this little victory. But it needs more apps to take on Android and iOS.

£485

★★★★☆

**BEST FOR
WINDOWS
PHONE 8**

9

**Huawei Ascend P1**

The P1's successor, the cleverly-named P2, will be arriving in summer 2013 for a SIM-free price of €399 (UK price £tba). It'll pack a larger 4.7in screen, 16GB storage and the potential for extra-fast 4G speeds thanks to a Category 4 LTE chip. Full review soon.

£230

★★★★☆

10

**HTC 8X**

The 8X takes the title of 'world's best-looking phone' and positively glows in its blue, red and yellow hues – as does its gorgeous 4.3in, sharper-than-Retina LCD display. The dual-core chip performs well too, but a thin apps catalogue loses it a crucial star.

£350

★★★★☆

**BEST FOR
PURE
AESTHETICS**

● Prices quoted are for handset only unless otherwise stated

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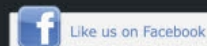
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HOT BUY 1 	Sonos multiroom system Who needs to drill holes and re-plaster walls to get a multiroom music system? Not you. With Sonos, you can expand your set-up at your leisure – why not start with a budget Play:3, and add a bigger Play:5 later? Then maybe hook up a Connect to your existing hi-fi and router, then add speakers to a Connect:Amp in another room, or a SUB for a bass boost. You'll run out of rooms before you run out of options. For a further upgrade, the Arcam rSeries SonLink DAC works a treat with the Connect.	STUFF SAYS Infinite music in every room without the need for custom installers? Sign us up now, please from £500 ★★★★★
2 	Cambridge Audio Stream Magic 6 Our favourite music streamer is only kept from the top spot by the brilliant flexibility of the full Sonos system; as a single player, we'd go for this every time. Team it with the Azur 651A amp (£350), feed it high-resolution 24-bit tunes and you'll never look back.	£600 ★★★★★
3 	Naim Uniti 2 The new Naim is the best streamer we've heard – feed it music by USB, Wi-Fi, or CD, and it'll pay you back with a sound that's breathtaking in its clarity and precision. It's not cheap and lacks streaming services, but as soon as you hear it you won't care.	£2795 ★★★★★ BEST FOR TOP SOUND QUALITY
4 	JBL OnBeat Xtreme Want to have your cake and eat it? Go for the OnBeat Xtreme. It's got an iThing dock, USB, Bluetooth streaming, built-in mic and video output. Plus it sounds great. Tasty. Got a new-fangled iThing with Lightning connector? Compatible models are out now.	£240 ★★★★★
NEW 5 	Denon CEOL Piccolo A diminutive standard-bearer for next-gen micro hi-fi, the Denon's got Spotify, a control app, and it'll stream your own tunes, right up to 24-bit. The dock's 30-pin, but who cares when you've also got Airplay? Add Q Acoustics 2020i speakers for awesome sound.	£250 ★★★★★ BEST FOR VERSATILITY AND VALUE
6 	Libratone Zipp A fuzzy, cylindrical, colourful Airplay dock that will deliver detailed, punchy 360-degree sound anywhere at all, thanks to a built-in battery that gives it four hours of outdoors life. Direct Wi-Fi skills free you from cables, routers, and everything but the boogie.	£330 ★★★★★ BEST FOR AL FRESCO PARTIES
7 	Philips Fidelio SoundSphere DS9800W In a world awash with AirPlay-equipped docks, the SoundSpheres have created a niche for themselves by offering proper two-channel stereo output. Idiosyncratic looks ensure they'll stand out even further from the crowd, and they sound great too.	£430 ★★★★★
8 	B&W A7 So farewell then, venerable Zeppelin. And hello there, A7 – an altogether subtler Airplay affair. Five drivers and a big woofer give it bags of spacious, room-filling sound, and the kind of dynamics 'proper' hi-fis wish they had. It sure doesn't come cheap, though.	£700 ★★★★★
9 	Focal XS Book Can a computer ever be a proper hi-fi substitute? It can if kitted out with these premium 40W desktop speakers. If the new wireless version – due out this May – doesn't interest you, you might well see a nice price drop on this existing model.	£250 ★★★★★ BEST FOR A DESKTOP HI-FI UPGRADE
10 	Logitech Mini Boombox Travelling light? The Mini Boombox is so small it'll fit in your pocket, but still pumps out a superb sound for the price, whether your tunes are streamed over Bluetooth or played via its 3.5mm line-in. The perfect accessory for all your summer picnics.	£55 ★★★★★ BEST FOR BUDGET BEATS ON THE GO

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STUFF PICK NEW MUSIC



Kurt Vile – Wakin On A Pretty Daze

Kurt Vile's mumbling, slacker rock is normally so laidback it's practically horizontal and while Wakin On A Pretty Daze is hardly a Ramones-esque blast, it's definitely his sunniest, most upbeat record yet. It might not reinvent the wheel, but then it can't really be bothered.

★★★★★



The Knife – Shaking The Habitual

Listening to this album through a good pair of headphones is like having a pair of telepathic crows squawking a sexually arousing nightmare directly into your mind, in the dark, in Sweden. All of which makes it perfect for commuting, or maybe a spot of shopping.

★★★★★



British Sea Power – Machineries Of Joy

Like sunny days, roast potatoes and test match cricket, BSP are incapable of being anything other than brilliant. Their fifth album is slightly more abrasive than its predecessor, but that's no bad thing and the title track is up there with their very best.

★★★★★



The Besnard Lakes – Until In Excess, Imperceptible UFO

The Besnard Lakes make huge, riff-heavy alt-rock that sounds like glaciers tearing new valleys through Alaska... or at least they did. A subtler beast than 2010's '...Are The Roaring Night', this is more iceberg than glacier, but it's no less lovely for it.

★★★★★



MY iPhone 5's HOMESCREEN

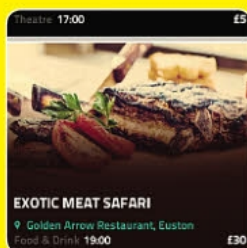
by Will Findlater, *Stuff* editor

Recent additions



1. Another World £2.49

New to my phone (but not necessarily to yours), this HD reboot of the atmospheric '90s classic is a must-try. Or at least it is if you're nostalgic for vector graphics, fiendishly challenging on-rails play and synthy sci-fi music.



2. YPlan £free

It's all in the name: I no longer plan my (very occasional) evenings out in advance, but rather use this app to guide my entertainment choices. It populates each day with a number of cool things happening nearby and gets you discounted tickets for events with a tap. Brilliantly curated, very clever. Why plan indeed?



Old favourites

4. Pocket £free

This app lets you save web stories you want to read at a leisurely time, stripped of awkward formatting and ads. Flag them on your phone, tablet or PC and it all syncs seamlessly. Great for online epics.

5. Songkick £free

This is how apps should be. Songkick scans your iTunes library and notifies you when artists you like are playing your town, providing you with direct access to tickets. And if you're a Spotify guy like me, it has an app built in to that too.

6. Triplt £free

Outside of work I'm terminally disorganised; Triplt makes it possible for me to go on holiday. I fling it my email confirmations, and it draws out my itinerary, integrating with my iPhone's calendar. Clever.

7. Baby Touch Happy Babies £1.99

I can't say I get a huge amount of pleasure from this app personally, but my 18-month old has used it to learn how ducks speak and where cows live. It's ignited his passion for farmyard machinery. Amazingly, he hasn't broken my iPhone. Yet.

8. Hipstamatic £1.49

I'm so retro even my retro camera app is old. Hipstamatic was the first (I think) and is the one I always return to, with the brilliant SnapPaks further bolstering its creative capabilities every few weeks.

In the dock

3. Google Maps £free

I'm on iOS, so I can't do without Gmaps – it vexes me every time I'm dropped back into Apple Maps' horrific data car-crash. Gmaps, meanwhile, is elegant and accurate, and its built-in public transport planning feels like a mini miracle. An essential.

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HOT
BUY

1



Apple iPad

The 4th-gen iPad still stands above all tablets, with an amazing screen that renders everything in glorious 2048x1536 on its 9.7in Retina display. Photos, games and movies look incredible and text is eggshell-smooth. The A6X chip's quad-core graphics and the LTE browsing speeds (EE only) make it slicker and more user-friendly than ever, while the unparalleled riches of the App Store mean it's still the most fun, too. That said, we're looking forward to an iOS refresh.

STUFF SAYS

Does everything the iPad has ever done, but now it's twice as fast and four times as pretty. Amazing from £385 ★★★★★

2



Google Nexus 7

The Asus-built, Jelly Bean-running Nexus is astonishing value. A passable 7in HD IPS screen sits in front of a mighty Tegra 3 processor, making it brilliant for gaming, but there are also next-gen toys such as NFC and the all-seeing Google Now to play with.

from £160
★★★★★

BEST FOR
VALUE AND
PERFORMANCE

3



Apple iPad Mini

A stunning finish makes this the prettiest Apple tablet yet. The 7.9in screen shares the iPad 2's 1024x768 res, but it's not as crisp as the Nexus 7 or Kindle Fire HD. Great apps offset that loss – but at £85 more than the Nexus 7, it's hard to recommend to all.

from £245
★★★★★

4



Asus Transformer Pad Infinity

Don't underestimate the keyboard dock. The Infinity uses it not just for its trackpad and keys, but also for connections and extra battery life. Along with quad-core power, it makes this full-HD-screener a netbook beater. The £485 Prime is also excellent.

£550
(w/keyboard dock)
★★★★★

5



Google Nexus 10

It doesn't feel quite as premium as the iPad, but the Nexus 10's 2560x1600, 300ppi screen is the sharpest we've seen on an Android tablet. With a dual-core 1.7GHz chip, solid battery life and speedy MIMO Wi-Fi, this Jelly Bean slate is a solid contender.

from £320
★★★★★

BEST FOR
MOVIE-FIEND
ANDROID FANS

NEW

6



Lenovo ThinkPad Tablet 2

You're a high flyer. You have work to do and neither iOS or Android has the oomph. You need the Windows 8 Pro-running Tablet 2. It lasts all day, is powerful enough for full-fat desktop software and with the £80 keyboard dock it's an ultraportable laptop.

from £465
★★★★☆

BEST FOR
DESKTOP
VERSATILITY

7



Sony Xperia Tablet S

Sexier, faster and skinnier than the Tablet S before it, this 1280x800 quad-core slate has a magazine-style fold for easy gripping. At 570g the solid aluminium build is lighter than the iPad, and DLNA skills and an IR blaster make it a top living-room slate.

from £300
★★★★☆

BEST FOR
AT-HOME AV
CONNECTIVITY

UPDATE

8



Samsung Galaxy Note 10.1

This 10in tab has an IR blaster, can run certain apps side-by-side (slowly) and comes with the super-precise S Pen stylus. A shame that its screen is just 1280x800, although an update now has it running Android 4.1 Jelly Bean. The 8in Note 8 is out now.

from £350
★★★★☆

9



Microsoft Surface with Windows RT

The pared-down Win RT hits the funky, chunky 10.6in Surface. Its 16:9 screen is a mere 1366x768 but images look good, graphics are smooth and battery life is excellent, as are the Touch and Type keyboard covers. A lack of apps limits it for now.

from £465
★★★★☆

10



Amazon Kindle Fire HD

Forgetting that big bezel, the Fire HD's 7in, 1280x800 screen packs a punch. It's also fast and has great speakers, making it a great tablet for films, ebooks and media consumption, so long as you don't mind the lack of apps and closed Amazon ecosystem.

from £160
★★★★☆

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BLU-RAY PLAYERS

HOT BUY	1		Sony BDP-S790 A quite remarkable device, this Sony sounds great, has a wonderful picture in 2D or 3D and is crammed with on-demand content including Sony's own Movies Unlimited. Its trump card is 4K video upscaling; you may not need it yet, but you soon will.	£200 ★★★★★	BEST FOR ON-DEMAND FILMS
	2		Panasonic DMP-BDT220 It's not the most extravagantly specified Blu-ray player around (though Panasonic's remote-control app is a joy), but the BDT-220 has the sort of picture- and sound quality to make its price look like a misprint. And that's our favourite kind of mistake.	£125 ★★★★★	BEST FOR BLU-RAY ON A BUDGET
	3		Marantz UD7007 Pricey like an Aston Martin is pricey and about as satisfying to own, this Marantz can play any disc you like, streams music at high-def resolutions and can withstand an earthquake. If you really, really take movies and music seriously, this is your player.	£630 ★★★★★	BEST FOR THE ULTIMATE IN QUALITY

SPEAKER SYSTEMS

HOT BUY	1		Sony BDV-N590 The biggest bargain in home cinema, the Blu-ray -packing N590 has a massive spec but a micro price. Picture and sound are excellent, Sony's smart services are immense and its stylish curves and touch-sensitive controls add a dash of premium quality.	£320 ★★★★★	BEST FOR AWESOME ALL- IN-ONE VALUE
	2		Sonos Playbar A characteristically Sonos take on the soundbar, the Playbar hooks up to your TV via its single optical input and fills your room with a big, detailed sound. And as with all Sonos kit, it can stream your own music files, Spotify and more wirelessly around the house.	£600 ★★★★★	BEST FOR ALL-YOU-CAN STREAM MUSIC
	3		Yamaha YSP-3300 If you've got more money than space, send your butler out now for the 3300. This compact bar delivers a fantastically convincing virtual surround sound by bouncing audio off the walls, and it'll pass through 4K or 3D video to your TV via HDMI.	£1000 ★★★★★	BEST FOR SMALL-ROOM SURROUND

PVRs, ETC

HOT BUY	1		Sky+HD With more than 65 channels of HD including the awesome Sky Atlantic, there's no more enjoyable way to get square eyes. Hook up your box to the web and you'll get iPlayer, ITV, 4oD and Sky Player too, while the Sky Go app is supremely slick.	from £free + £32/month ★★★★★	BEST FOR DELIVERING EVERYTHING
	2		Virgin TiVo Hardware-wise, the taste-learning TiVo is a Sky+HD-beater, but it loses out on content. Its TV Anywhere app is a neat touch, as is the addition of multi-room streaming, which allows you to share recorded content between multiple boxes.	from £free + £13/month ★★★★★	BEST FOR SMART TELLY- WATCHING
	3		Samsung STB-E7500 Still the best Freeview HD box out there, the Sammy's slick, dual-core operation, twin tuners and 500GB HDD keep it ahead of the also-rans, while its superior raft of movie-streaming services make it a real alternative to a subscription service.	£230 ★★★★★	BEST FOR SUBSCRIPTION- FREE TV

VIDEO STREAMERS

HOT BUY	1		Sony SMP-N200 Sony's near clean-sweep of this page owes much to its fantastic smart TV roster, and this 1080p-capable box has 'em all. So you get iPlayer, Lovefilm and Sony's own Video Unlimited, plus the ability to stream your own files, and all for less than a (big) night out.	£100 ★★★★★	BEST FOR SMARTING UP A DUMB TV
	2		Microsoft Xbox 360 What was once a games console is now an impressive all-in-one entertainment device, giving you Sky (live and On Demand), Lovefilm (now in HD), Netflix, iPlayer, and 1080p on-demand movies from Zune. Oh, and you can still play games on it too.	from £130 ★★★★★	BEST FOR MULTIMEDIA FUN
	3		Apple TV We're still waiting on Apple's TV set, but this box is a good start. It can stream in 1080p, access Netflix and Youtube and opens up the riches of the iTunes store. It even makes a neat, dual-screen games machine when teamed with an iOS device.	£80 ★★★★★	BEST FOR BIG-SCREEN IPAD GAMING





HOT BUY 1		Samsung UE55F8000 The world's best TV? No question. The 55in F8000 has the best picture, the smartest features, the biggest sound and the most innovative controls of any telly out there. This is a TV you'll never tire of watching, which is just as well, because there's plenty to watch on it: Freeview, Freesat and all the riches of the revamped Smart Hub, complete with Netflix, LoveFilm, iPlayer and more. Other highlights include the TiVo-style S-Recommendation tool and the Touch remote. Superb.	STUFF SAYS Start saving up now – the super-smart Samsung F8000 is the TV your eyes have been waiting for £2500 ★★★★★
2		Sony KDL-46HX853 The best TV from 2012 has been usurped from its No.1 spot by the first of 2013's sets, but don't let that put you off it. It's smart to look at and clever to live with, serving up a stunning picture, great sound and an array of on-demand and internet content.	£1200 ★★★★★
3		Panasonic TX-P50GT50 A close competitor to the Sony – and if size matters to you, its larger 50in panel may help seal the deal in its favour. Exceptional picture performance and a strong spec are assets too, although the Sony's online features and styling are a shade slicker.	£900 ★★★★★
4		LG 47LM960V With seven pairs of 3D specs in the box – two of which allow for full-screen gaming – this passive 3D TV is great for social occasions. It's recently been updated with the Game World portal, featuring 2D and 3D games – some playable with LG's Magic Remote.	£1400 ★★★★★ BEST FOR 3D MOVIES WITH FRIENDS
5		Sony KDL-32HX753 This 32in Sony's performance-orientated spec means you needn't compromise on features just because you've opted for a smaller screen. It runs at 200Hz (240Hz in 3D mode) and comes with all the smart features of its larger stablemates.	£520 ★★★★★
6		Panasonic TX-P50X50B Sure, you could concentrate on what you don't get – less than full HD, no Smart features, a minimum of connections – or you could fixate on a 50in plasma TV with great pictures loaded with subtle colour and fine detail – for under £400. Yummy.	£380 ★★★★★ BEST FOR BUDGET BIG-SCREEN FUN
NEW 7		Bang & Olufsen BeoVision 11 Five grand for a 40in TV might seem a trifle steep, but if that's small change to you the BeoVision 11 is a luxurious delight of design and 1080p picture quality. It also sounds better than any TV we've ever used, and has a built-in surround processor for adding 5.1.	£4995 ★★★★★
8		LG 42LM660T Although not the most spectacular of 2012's TV debutantes, the LG's comprehensive spec and consistent performance make it great value. Its family-friendly passive 3D tech also helps, while it's recently been updated with the new Game World portal.	£630 ★★★★★
9		Toshiba 55ZL2 The price is a considerable obstacle, but it's hard not to be impressed by Tosh's 55in specs-free 3D TV. Its 3840x2160 screen looks spectacular with both upscaled Blu-ray and native-res images – if you can find any. The 3D works... so long as you don't move.	£5000 ★★★★★☆ BEST FOR SPECS-FREE 3D VIEWING
10		Panasonic TX-L47DT50 Panasonic is best known for its plasmas, but this LED set is worth a gander. You get fairly basic menus, but Viera Connect is excellent and Freeview HD and Freesat HD deliver stunning 3D, although specs cost £80. It just lacks a smidgen of detail and depth.	£1100 ★★★★★☆

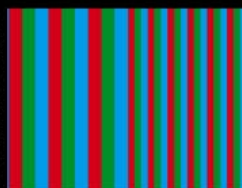
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WHAT TO LOOK FOR



Screen size

The max screen size to consider is the distance you're sitting away from it divided by 1.5 – so if you're 10 feet away, your max screen size should be 80in. Which is massive. But that's OK: go big or prepare for disappointment a couple of years down the line, as average TV sizes keep on growing.



Screen specs

Emerging 4K resolution (3840x2160) TVs are incredibly sharp, but expensive – and the extra pixels make no perceptible difference with sets under 60in from 8 feet away. A 1080p (1920x1080) TV that's good with fast motion is a safe bet. Avoid 720p TVs unless you're going 27in or smaller.



Smart TV & streaming

Web apps, games and voice and gesture control aren't essential – a second screen gadget such as an iPad is more sensible. If you want to stream your own files, look for DLNA sets with support for MP2, MP4 and MKV. BBC iPlayer, Netflix, LoveFilm, 4oD and ITVPlayer are your TVoD basics.



One box or many?

Think of what you want to plug into your TV. You'll need HDMI for a PVR, but if you want to record TV without an external box, look for Freeview HD or Freesat tuners and USB recording. To bolster the TV's sound, look for HDMI with ARC so that TV audio can be routed through your amp or soundbar.

HOME COMPUTERS

HOT BUY	1		Apple iMac The latest iMac is thinner and more powerful than ever: Core i5 or i7 Ivy Bridge and at least 8GB RAM running the none-more-elegant OS X Mountain Lion. Apple has yet to embrace touchscreen tech, but why would you want to besmirch that luscious screen?	from £1035 ★★★★★	BEST FOR ALL-ROUND BRILLIANCE
	2		Alienware X51 This PC is as happy sat by a TV as it is under a desk. It's the size of an Xbox 360 but it runs a whole lot faster – and is whisper-quiet. With a Core i5 Ivy Bridge processor, 8GB of RAM and the new 1GB Nvidia GTX 660 graphics card, it's got more welly than ever.	from £850 ★★★★★	BEST FOR HARDCORE GAMERS
	3		Dino PC Mini Carnivore HTPC At the size of a year's worth of <i>Stuffs</i> , the Dino is lounge-friendly indeed, while Blu-ray, near-silent operation, low power uptake and Xbox-quality gaming belie its diminutive size. Meanwhile, the addition of an Intel Core i5 3570K processor gives this Dino extra roar.	from £595 ★★★★★	BEST FOR COMPACT POWER

SAT-NAV

HOT BUY	1		TomTom GO LIVE 1005 We're smitten. With its spacious 5in screen and clever route calculation, the 1005 is our fave sat-nav yet. Yes, there's an added cost, but you get a free year of Live services (£47.50 thereafter), including HD Traffic, complete with real-time info on road snarl-ups.	from £200 ★★★★★	BEST FOR TOTAL TRAFFIC KNOWLEDGE
	2		Google Maps Navigation Apple's Maps app for iOS6 remains pretty, but flawed. With Google Nav now back in the iTunes Store, there really is one solid choice for both iOS and Android users and this is it. Street View, accurate public transport info, cycle maps and decent traffic warnings. Bingo.	£free ★★★★★	BEST FOR BUDGET TRAVELLERS
	3		Garmin nüvi 3490LMT Slender and stylish, this posh-nav might look expensive but it comes with the major benefit of live traffic info – via a Garmin smartphone app – free for the lifetime of the device. Add pinch-to-zoom, 3D maps and photo-realistic junctions, and it's a win.	£225 ★★★★★	BEST FOR TRAVELLING WITH STYLE

CAMCORDERS

NEW HOT BUY	1		Canon Legria HF R48 If you're after a video box that concentrates on the things that count, the HF R48 is your cam. It lays down super-smooth 1080p@50fps footage in all conditions, has a useful 32x zoom, 32GB of internal memory, a big battery and even does a fine job with sound.	£385 ★★★★★	BEST FOR TOP-QUALITY HOME MOVIES
	2		GoPro Hero3 Silver Edition Thinner, lighter and more feature-laden than ever, the rugged Hero3 doesn't disappoint, shooting fantastic wide-angle 1080p@30fps and 11MP snaps. Alternatively, extreme videographers after 4K footage or 720p@120fps might prefer the Black Edition (£360).	£190 ★★★★★	BEST FOR ACTION-JUNKIE FILM-MAKERS
	3		Canon XA10 Canon's ultra-compact XA10 handles fine detail superbly due to its f/1.8 lens and 2.37MP chip. It might not look big enough to play with the big boys, but twin XLR inputs on its detachable handle give would-be filmmakers professional prowess straight out the box.	£1280 ★★★★★	BEST FOR SERIOUS SHOOTERS

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HOT BUY UPDATE 1		Phonak Audéo PFE 012 It's not easy creating the perfect headphones. Music is so subjective that one human's perfect sound is lacking in bass for another, and too bright for pedant number three. The PFE 012s do about as good a job of satisfying disparate tastes as any in-ears we've tried. They dig up bags of detail and deliver sweet vocals along with a palpable soundstage. You'll need to move fast though, as they're soon to be discontinued. We'll be listening out for a worthy replacement in the near future.	STUFF SAYS Fantastic sound, noise blocking and comfort at an excellent price. The perfect PMP upgrade £75 ★★★★★
2		Bowers & Wilkins P3 Superb sound and a very solid and achingly stylish design make these the best portable on-ears around. The fact that two cables come in the box – one with a mic and remote for iPhones and one without – only sweetens the already candy floss-like deal.	£165 ★★★★★ BEST FOR ON-EAR EXCELLENCE
3		SoundMagic E10 Look closely at the picture and you might notice a little weave in the E10's cable. Yes, these budget belters were tweaked a while back to make their cable more durable. They sound better than they did too – good enough for the bronze-medal spot.	£35 ★★★★★
4		Sony XBA-4iP These chunky in-ears have four drivers pumping exceptionally punchy, detailed sound into each of your gloriously spoilt eardrums, but despite the fairly hefty design they're surprisingly comfortable, too. They were £400 at launch, so £240 is a great deal.	£240 ★★★★★ BEST FOR IN-EAR EXCELLENCE
5		Sennheiser MM 450-X With hi-fi quality aptX Bluetooth, noise-cancelling, great sound and a mic for use with smartphones, the awesomely portable MM 450-X cans might be the only pair of headphones you ever need. Now we're just hoping the next iPhone has aptX built in.	£215 ★★★★★ BEST FOR GREAT SOUND WITH NO WIRES
6		Klipsch Image X10i A perennial favourite at Stuff Towers, these tiny, mic-toting buds sound superb and are more comfortable than they look. They launched at £230, so are something of a real bargain now. Even the Lou Reed Signature Editions are now available for £130.	£120 ★★★★★
7		PSB M4U2 Yes, the M4U2s have got great noise-cancelling, but that's only half the story. Using the built-in amp produces a sound that's almost unbelievably punchy, clean and exciting. They might be a bit heavy, but that audio quality really is worth the weight.	£270 ★★★★★ BEST FOR SHUTTING OUT THE WORLD
8		Sennheiser Momentum Classically styled, cushion-comfortable and smooth-sounding, the Momentums are the perfect pair of on-ears for the dapper man about town. There's no noise-cancellation, but they do isolate nicely. While they don't fold down, a neat case is included.	£260 ★★★★★ BEST FOR QUALITY AND STYLE IN ONE
9		Grado iGrado These have been around a while now, but not long with their new driver, which makes them better than ever. Detail, punch and superb tonal balance are the selling points, but they're open-backed, so commuters beware – you'll be leaking sound all over the bus.	£45 ★★★★★
10		Sennheiser CX 680i Light, sweat-resistant and with a clever 'EarFin' to keep them in place, the CX 680i in-ears are the perfect partner for sporty music lovers. They sound impressive, too, and have an in-line mic. Try the PMX 680is (£50) if you'd prefer a neckband design.	£45 ★★★★★ BEST FOR TUNE-LOVING FITNESS FANS

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STUFF PICK NEW BLU-RAY



Jack Reacher

"So we need someone to play this 6'5" action hero... how about guarantee of box office success Tom Cruise?" As it is, 'ol Mr Scientology's modest height doesn't get in the way of a hard-hitting performance. Add a fairly intelligent plot and some brilliantly written action and you've got a solid thriller.

★★★★★



Life of Pi

An overly life-affirming tale, told through the medium of overabundant CGI. Yes, it's a technical masterpiece, but overall the film suffers from a long runtime and somewhat saggy pace. Those metaphors about spirituality and morality are also rammed down your throat slightly too far.

★★★★☆



Pitch Perfect

Musical comedies aren't only aimed at teenage girls, as this one demonstrates. *Pitch Perfect* is weirder than *Glee* would ever dare to be – and much funnier – and while it doesn't stand up to much scrutiny, 30 Rock scribe Kay Cannon's script ensures it's always an entertaining romp.

★★★★★



Quartet

A few times a year, Hollywood throws a bone to the older crowd. This one is destined to be double-billed with *The Best Exotic Marigold Hotel*. It's sincere and endearing, with some great performances, but there's not much here that we've not seen before. Charming, but rather clichéd.

★★★★☆

HOT BUY	1		Tomb Raider PC/PS3/Xbox 360 Finished <i>Far Cry 3</i> ? Finding it difficult to see the point in life without a bow and arrow? Fear not, for Lara Croft is here and she has exactly the projectile weapon you're after. Yes, it's a Franchise Reboot, and yes, it's an Origin Story, but the well-paced mixture of puzzles, action sequences, shoot-outs and stealth make for a deeply immersive, cinematic experience. With large, highly explorable environments and a long, twisty story, this is very nearly the best fun we've had pretending to be a 21-year-old girl.	STUFF SAYS Nice to see the pneumatic Lara remade into a more believable character in this big, cinematic blockbuster ★★★★★
NEW	2		Bioshock Infinite PC/PS3/Xbox 360 From its achingly gorgeous setting in the skies to a super-intelligent story that tackles religion, racism and metaphysics, <i>Infinite</i> is an innovative <i>tour de force</i> . None of that would matter if the gameplay lagged – but it barely puts a foot wrong either. Stunning.	★★★★★ BEST FOR MIND-BENDING STORYLINES
UPDATE	3		Far Cry 3 PC/PS3/Xbox 360 Incredibly, Ubisoft has taken the 'rich white tourist goes to war on third-world islanders' premise and turned it into a hugely enjoyable adventure. With a huge range of quests and a recent patch ramping up the difficulty level, <i>FC3</i> is good for months of entertainment.	★★★★★ BEST FOR OPEN-WORLD ADVENTURING
	4		Dishonored PC/PS3/Xbox 360 This whale-oil-fuelled steampunk adventure is <i>Deus Ex</i> with a crossbow, and as such it's all about choice: 'ghost' the game without killing anyone, go in stabbing with your sword or use your eldritch powers to summon a swarm of man-eating rats.	★★★★★ BEST FOR HOLLYWOOD- SCALE VISUALS
UPDATE	5		Assassin's Creed 3 PC/PS3/Xbox 360 A huge game in every sense, with a very long central campaign, a cornucopia of mini-games and side missions, and a vast world to explore. Finished all that and thirsty for more? The final part of DLC trilogy, <i>The Tyranny of King Washington</i> , is now available.	★★★★★
	6		FIFA 13 PC/PS3/Xbox 360 The field of choice for <i>Stuff's</i> office league continues to impress. The tweaks are relatively subtle, but add up to a huge advance in realism. They've even sorted out some of our gripes such as AI team-mates running offside with frustrating regularity.	★★★★★ BEST FOR MULTIPLAYER BATTLES
	7		Forza Horizon Xbox 360 Previous <i>Forza</i> games were lauded for their realism, accuracy and looks. <i>Horizon</i> takes that expertise, hands you the keys and allows you to go joyriding in an open-world landscape, challenging other drivers while gunning it like a mad, cackling fool.	★★★★★
	8		Ni No Kuni: Wrath of the White Witch PS3 Even if you haven't played a Japanese RPG since 1998, this charming story is worth revisiting the genre for – and if you're a fan of Studio Ghibli animation, it's a must-play. Plus, it features an amusing Welsh potato-creature with a lantern in his nose.	★★★★★ BEST FOR CHARM AND INVENTION
	9		Halo 4 Xbox 360 Master Chief is back to do battle with the Prometheans. No, not the ones from <i>Mass Effect</i> . No, nor the guys from <i>Prometheus</i> . But if you're after imagination and a story, you're missing the point. If you're after weeks of brainless, alien-wasting fun... bingo.	★★★★★
	10		Borderlands 2 PC/PS3/Xbox 360 The first <i>Borderlands</i> took a big gamble on its boldly original, cel-shaded animation style, and won a big pile of fans and money. The sequel looks even better, while also serving up extra helpings of humour, explosions and frenetic gunishment.	★★★★★

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HOT BUY	1		Apple MacBook Air 13in If you're an Apple fan, deciding which MacBook to buy ain't easy. The Air is more powerful than ever, with Intel Core i5 or i7 Ivy Bridge processors, HD 4000 graphics and two USB3.0 ports – yet it's still jaw-droppingly slim and sexy. But then the MacBook Pro with Retina Display (below) has more power still, plus that incredible screen and is no longer a porker itself. It's also loads more expensive, though, and while our hearts might say 'Pro', our minds (and bank managers) are saying 'Air'.	STUFF SAYS Tiny it may be, but the stunning MacBook Air, running the best OS out there, won't shirk big jobs £870 ★★★★★
	2		Apple MacBook Pro with Retina Display Simply put, the 15-incher is the best laptop (ever) thanks to power, portability and the best screen of any laptop we've seen. The 13in model has less grunt but is a tidier size. So why No.2? Because they're both pricey, and in real life we'd have to go for the Air.	£1215 ★★★★★ BEST FOR EVERYTHING BAR THE PRICE
	3		HP Envy 6 Sleekbook AMD Trinity processors power this Ultrabook alternative, making it cheaper and more battery-filled. The Envy 6 has a quality metal lid and rubberised base, 15.6in screen, and its 6GB RAM gives the 500GB hard drive faster boot times than a similar Intel core i3.	£430 ★★★★★
NEW	4		Acer Aspire S7 The Aspire S7 is almost the perfect Ultrabook – it matches the MacBook Air for weight, beats it for slimness by 6mm, and has a gorgeous 1920x1080 touch-friendly screen. Only its battery, which lasted a mere five hours on test, prevents it getting that fifth star.	£1000 ★★★★★☆ BEST FOR TOUCHY-FEELY WINDOWS 8
	5		Samsung Chromebook A slim, light chassis, 12-hour battery life and super-speedy operation make this low-cost netbook a winner. It's not ideal for gaming or HD videos, but most of Google's tools work offline too. Google's Chromebook Pixel has better specs but is way too pricey.	£215 ★★★★★☆ BEST FOR VALUE AND PORTABILITY
	6		Asus S200E The touchscreen makes it ideal for Windows 8, but the S200E's also got a top keyboard, bags of connectivity and enough power for 3D gaming. Specs aren't quite top notch, but with an i3 Sandy Bridge core, 4GB RAM and a 500GB HDD, it's good enough at this price.	£380 ★★★★★☆
	7		Alienware M17x At 4.26kg the M17x is only really portable in theory, but it's carrying the good kind of weight – the kind that includes Radeon HD7970M graphics, an Intel Core i7 Ivy Bridge chip, and a precise 17in 1080p screen. The kind of weight that crushes modern games.	£1300 ★★★★★☆ BEST FOR SERIOUS GAMERS
UPDATE	8		Asus Taichi 21 This Win8 hybrid sticks a live tile-friendly touchscreen on top of a full laptop sporting Core i7 innards. You know how the saying goes: why settle for one 11.6in HD screen when you can have two? And there's now a 13-inch version too – the Taichi 31.	£1450 ★★★★★☆
	9		Acer Aspire S3 There's no denying that Acer's first Ultrabook, the 13.3in Aspire S3, is invading the MacBook Air's territory: it comes with an Intel Core i7, 4GB RAM, 500GB HDD/SSD hybrid drive and HDMI. The Air is way pricier, but has a sharper screen and better build.	£475 ★★★★★☆
	10		Samsung 900X4C Cramping a 15in screen into a 14.9mm slim body is impressive – the quality of said screen, slightly less so. But with 8GB RAM, a 1.7GHz Intel Core i5 Ivy Bridge chip and 128GB SSD, it's a solid Air alternative. Price cuts bring it close to the Air, too.	£965 ★★★★★☆

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Sony DCR-TRV20
£1500

Stuff said Sony's unrivalled experience shines through: the TRV20 oozes refinement and sophistication. AV performance, control layout and features will suit almost everyone. Add to that the brilliant infra-red NightShot mode and we have ourselves a worthy winner.
★★★★★



Fujitsu Siemens Lifebook X-7595
£2940

Stuff said With its powerful 850MHz processor, 15.1in 1400x1050 32-bit true colour display, 128MB of RAM, extra security features and more connection points than your average singles bar, this laptop is a fine desktop replacement.
★★★★★



Panasonic RQ-SX72
£60

Stuff said Record companies don't care about copying to tape these days and William Hill won't give cassettes good odds as the audio medium of the next century, but they're still a decent option for travel. The 100hr battery life (with AA add-on) is handy for long trips.
★★★★★



Franklin eBookMan EBM-901
£170

Stuff said Speak-and-spell specialist Franklin describes the EBM as a reader, assistant and player. The 901 offers a lot: PDA functionality, voice recorder and MP3 player. It's too big for your pocket but beats carrying a hardback Moby Dick around.
★★★★★

HOT BUY	1		Fujifilm FinePix X10 The X10 is the sibling of the retro-tastic X100, with old-school nods such as an 8–112mm-equivalent lens, a faux-Vulcanite body cover, an engraved top plate, a threaded cable release socket on the shutter button and an optical eye viewfinder that's bigger and brighter than those on its super-compact rivals. It also has a big 2/3in sensor, which combined with the pin-sharp lens and super-fast AF provides incredible image quality. Look out for a test of the X20 soon.	STUFF SAYS Gorgeous retro styling, a superb viewfinder and fantastic photos make for a compelling package £255 ★★★★★
UPDATE	2		Canon PowerShot S110 Superb image quality at most ISO settings, manual controls and a new touchscreen are enough to put this truly compact snapper in the No.2 spot. And while its Wi-Fi sharing isn't as easy to use as we'd like, an update to CameraWindow should remedy it.	£230 ★★★★★
	3		Sony Cyber-shot DSC-HX20V It's not the most compact of compacts but the 18MP HX20V builds on the success of the HX9V beautifully. The headline-grabber is the 20x optical zoom with serene image stabilisation and unrivalled video. A superb compact that's ready for anything.	£235 ★★★★★
NEW	4		Nikon Coolpix AW110 With a metallic body, sturdy locking mechanism and optional camo finish, our new favourite tough cam has got that whole military chic thing nailed. Its army – geddit? – of features include excellent 16MP stills, 1080p@30fps video and glove-friendly controls.	£250 ★★★★★ BEST FOR ADVENTUROUS SNAPPERS
UPDATE	5		Sony DSC-RX100 The 20MP RX100 is just what we're looking for in an advanced compact. Genuinely pocketable with a huge 1in sensor and customisable lens ring, it takes natural, well-balanced images and is able to shoot silky 1080p@50fps video. Top notch.	£410 ★★★★★ BEST FOR PORTABLE POWER
	6		Panasonic Lumix DMC-FZ200 If you want a superzoom cam, the Lumix FZ200 wipes the floor with its rival snoopers. A small and solid build is coupled with a 24x optical zoom, an excellent auto mode and spot on exposure abilities. The downside is the video, which is a mixed bag.	£340 ★★★★★ BEST FOR AT-A-DISTANCE SHOOTING
	7		Canon PowerShot G15 Looking for a compact(ish) camera with pro flourishes such as optical viewfinder, external flash, filter ring and manual controls? The G15 will do you proud. You'll also get crisp, clean photos with accurate colours, plus a nippy AF and a tank-like build.	£290 ★★★★★
	8		Samsung Galaxy Camera The new king of snap-sharing has a 4.8in screen, Android 4.1, auto Dropbox uploads and loads of filter and editing apps. Its 16.3MP images aren't quite the best, but it's a sexy slice of the future and updates bring new scene modes including 'food'. Yes, food.	£295 ★★★★★☆ BEST FOR ON-THE-GO IMAGE SHARING
	9		Canon IXUS 125 HS A surprisingly powerful camera given its tiny dimensions, the IXUS 125 HS has stripped-back controls, 5x optical zoom and no fewer than 58 different settings in auto mode. It's not one for enthusiasts, then, but neither does it compromise on image quality.	£100 ★★★★★☆ BEST FOR BUDGET BUYERS
	10		Olympus XZ-2 If night-time photography gets you going, the XZ-2 is a fine choice. It has the same super-fast f/1.8 Zuiko lens as its predecessor, but improves image quality thanks to a new 12MP sensor. But superior compacts can be found higher up in this list, for less.	£350 ★★★★★☆

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Cashback*

£30 Canon Cashback*

Canon PowerShot G1 X
Digital Camera
14.3 MP with 4x Optical Zoom

£449 Inc Cashback*
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Canon PowerShot G15
Digital Camera
12.1 MP with 5x Optical Zoom

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HOT BUY	1		Olympus OM-D E-M5 After its success in resurrecting the PEN brand, it was inevitable Olympus would emblazon the legendary OM moniker across its first compact system camera with a viewfinder. And boy, does it live up to the name. This is a CSC with pro aspirations: astoundingly fast AF, 9fps burst shooting, an excellent EVF, weatherproof body, tons of controls and superb 16MP pics right through to ISO 25,600. Best of all is the Live Time mode for a live view of long exposures. It's well-priced these days too.	STUFF SAYS The best compact system camera so far, boasting super-fast autofocus and great advanced features £780 ★★★★★ (w/12-50mm lens)
UPDATE	2		Canon EOS 650D Our favourite DSLR contains a hybrid 18MP CMOS sensor that enables continuous autofocus during video recording, a responsive touchscreen and 5fps burst shooting. The 700D is out soon, but it's not a massive upgrade, so the 650D remains a good bet.	£390 (body only) ★★★★★ BEST FOR ALL-ROUND VALUE
	3		Nikon D600 Pro power has never come at such a reasonable price. A full-frame 24.3MP sensor combines with accurate 39-point autofocus for stunning results. Dual SD card slots, built-in flash and 5.5fps shooting speed complete a seriously powerful proposition.	£1205 (body only) ★★★★★ BEST FOR SHOOTING LIKE THE PROS
	4		Panasonic Lumix DMC-GX1 The spiritual successor to the GF1, the GX1 is a Micro Four Thirds cam that's as satisfying for the enthusiast as it is for those stepping up from a compact. Plenty of controls and a touchscreen combine with a superb 16MP sensor for a very reasonably priced package.	£270 (body only) ★★★★★
	5		Sony NEX-7 A host of manual photo and video controls are available via its gorgeously minimalist unmarked knobs, but it's the exceptional quality of its 24.3MP images that really impresses. We suspect that an updated model may be just around the corner, though.	£750 (w/18-55mm lens) ★★★★★
	6		Canon EOS 60D The Canon 60D is a DSLR camera aimed at the serious amateur: a ruggedly built, feature-stuffed snapper that counts full 1080p video among its charms. An all-round great choice for the Canon user looking to step up from the entry-level models.	£460 (body only) ★★★★★
	7		Canon EOS 6D Canon's cheapest ever full-framer is an awesome little SLR with a few clever tricks up its lens. As well as its all-new 20.2MP sensor, it boasts a GPS receiver for geotagging your pics and Wi-Fi for direct uploading or remote control from an iPhone or Android device.	£1160 (body only) ★★★★★
	8		Sony SLT-A77 This Sony is super-capable, with continuous shooting speeds of up to 12fps, a 24MP sensor, rugged body and an absolutely stunning electronic viewfinder. Despite the A77's SLR-ish looks, it has to make do with a digital eye viewfinder rather than an optical one.	£630 (body only) ★★★★★
	9		Panasonic DMC-G5 The G5 is the only snapper with the pace to keep up with the Olympus E-M5's autofocus. Beginner-friendly controls, decent 16MP pics, touchscreen control and superb full HD 60fps AVCHD video recording all add up to a compelling package.	£620 (w/14-42mm lens) ★★★★★
	10		Nikon D3200 Like its D3100 predecessor, the D3200 has an excellent photography-course-in-a-camera Guide mode, although that's no longer the star attraction. This entry-level DSLR has a very non-entry-level 24MP sensor capable of producing truly professional results.	£325 (body only) ★★★★★ BEST FOR NEWBIE SNAPPERS

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Cashback*



£80
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HOT BUY 1		Amazon Kindle Paperwhite The Paperwhite's 6in touchscreen has 62% more pixels than its predecessor, giving it pin-sharp text, but all you'll care about is the built-in backlight. It's a godsend for night-time reading, and even in sunshine the always-on light makes text sharper and 'pages' whiter than ever. With a solid build, grippy rubber finish and plenty of fonts, you'll wonder how you ever lived without it. Plus Amazon's online ecosystem still rules supreme. Feeling skint? The excellent non-touch basic Kindle is just £70.	STUFF SAYS The best screen, the best ebook store and a light that could change reading habits – Kindle's still on top £110 ★★★★★
2		Pebble The age of the smartwatch begins with the Kickstarter-funded Pebble. It works well as a timepiece thanks to a crisp mono LCD and customisable faces, but the fun really starts when you sync with your iThing or Android device for notifications and apps.	£100 ★★★★★ BEST FOR FUTURISTIC TIMEKEEPING
3		Parrot AR.Drone 2.0 The second-generation of this app-controlled quadricopter boasts a 720p camera, easier control and – best of all – the ability to do flips. You don't need one, but you'll want one. A recent price drop means there's enough for a spare battery (£30) too.	£245 ★★★★★ BEST FOR WANNABE PILOTS
4		Apple iPod Touch An iPhone without the phone, the 5th-gen Touch is lighter and thinner than ever – and it's got a 4in Retina screen, too. With iOS 6, the 5MP iSight camera, Siri, iTunes and App Store joys, this is a media device that's no longer just about playing the odd tune.	£220 ★★★★★ BEST FOR APPS WITHOUT THE IPHONE
5		Nike Lunar TR1+ Can't afford a personal trainer? The Lunar TR1+ running shoes are cheaper, and far more intelligent too. Sensors at the ball, heel and toe, plus 3-axis accelerometers record how you're moving, and an iOS app gives you feedback and workouts from top athletes.	£125 ★★★★★ BEST FOR TECHED-UP WORKOUTS
6		HP Envy 110 Packing all the basics as well as wireless printing and AirPrint for easy use with iDevices, this whisper-quiet printer performs as smoothly as its metal and glass chassis might suggest. Did we mention it has its own email address for printing photos? Oh, we just did.	£125 ★★★★★ BEST FOR PRINTING IN STYLE
7		Synology DS212J Slot two hard drives into this NAS box, and you can back up your precious data and stream it via DLNA to TVs, consoles, tablets or phones. It's also a print, FTP, mail and iTunes server, with iOS and Android apps. Energy efficiency is a nice green bonus.	£155 ★★★★★ BEST FOR MULTIMEDIA FUNCTIONS
8		Teenage Engineering OP-1 With a synth, virtual four-track recorder, sampler, internal sequencers, FM radio – for capturing your own samples – two drum machines and a smorgasboard of effects, the OP-1 is all you need to become the next Daft Punk. Well, one of them at least.	£640 ★★★★★ BEST FOR BEDROOM MUSIC MAKERS
9		Sennheiser X320 These gaming cans – with a noise-cancelling mic, bass boost and controls for in-game and voice channels – are aimed at Xbox 360 users. Not of the Xbox persuasion? Look out for the U 320s, which will play nicely with your PS3, PC and Mac.	£65 ★★★★★ BEST FOR GAMEWORLD IMMERSION
10		KTM Macina Race 29 Teutonic motorbike specialist KTM serves up an MTB with a four-speed 250W Bosch motor that provides torquey pedalling assistance for up to 75 miles – albeit with an initial weight penalty. Bigger 29in wheels and quality Shimano bits keep things rolling.	£2400 ★★★★★ BEST FOR CYCLING WITH POWER

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The history teacher
A well-cut tweed jacket and a well-cut beard mark you out as the kind of man who knows his Corn Laws from his Cornelius. The sixth form girls see you in the pub on a Friday night and wish they had the courage to talk to you.

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The hot rod
Perhaps you run a motorbike repair shop in America. Perhaps you have tattoos, wear a lot of denim and listen to bands with names like Throttle My Goatsnake. Or perhaps you're an IT Manager from Dagenham.

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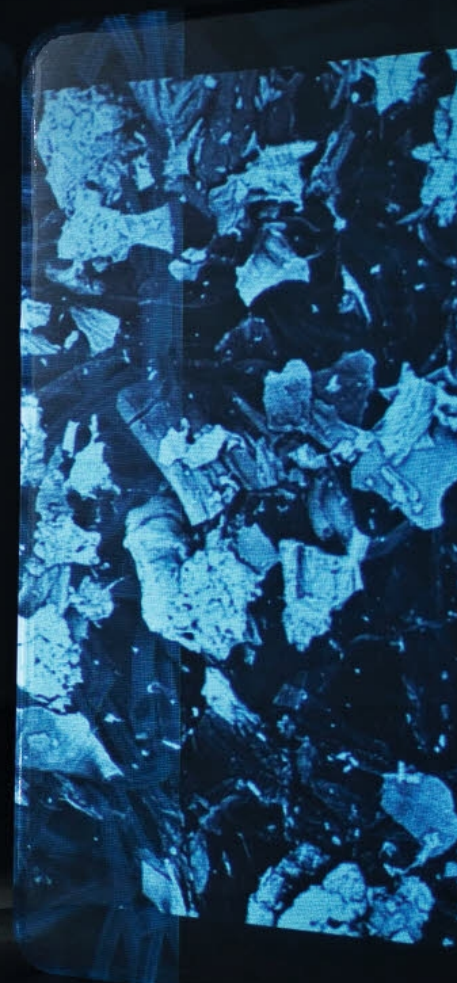
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Never mind that. Neologisms are nothing compared with your hidden environmental potential. Look at you, walking around and expelling gases. Driving willy-nilly with nary a care and producing yet more fumes. Heck, you're not even giving anything back by using the energy-producing kinetic roads that are everywhere (well, at that Sainsbury's in Gloucester). You are nothing but a burden to the environment and it has got to stop.

Woah there, Nelly. I went to see that Al Gore film.

Not good enough. And I mean you, as well as the film. But don't despair – there's now a new way to do something for our dying planet, and it's far less tiresome than all of the existing ways to do something for our dying planet. By which I mean that you won't have to separate your recyclables, or give up your gigawatt surround sound system. The brainbaby of a British creative-scientific supergroup called Catalytic Clothing, this is a way to save Mother Earth using the very clothes on your back.

I have clothes on my front too. And my bottom.

Don't be facetious. As in all wizard wheezes, the trick here involves nanotechnology. You simply wash a light-activated photocatalyst into your clothes, where it breaks down passing airborne pollutants into harmless chemicals. Your duds get no dirtier than they do day to day, and when they need a clean, you just wash them in the special stuff again. Its designers reckon it'd add a measly 5p to the cost of your average box of washing powder, and while it would need a big uptake to have an effect, every little helps.

[Words: Fraser Macdonald]

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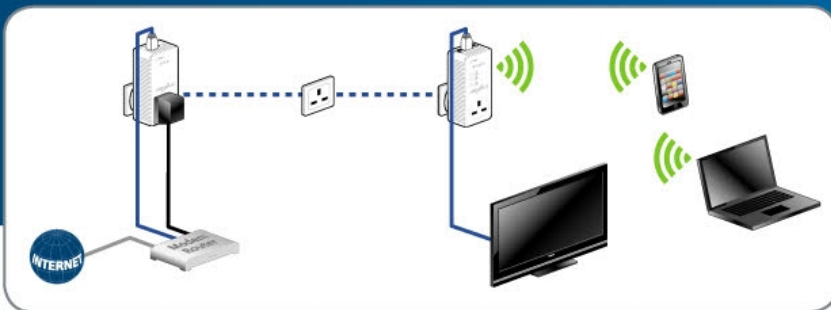
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